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**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION**  
Washington, D.C. 20549

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**FORM S-1  
REGISTRATION STATEMENT  
UNDER  
THE SECURITIES ACT OF 1933**

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**ENZON PHARMACEUTICALS, INC.**

(Exact name of registrant as specified in its charter)

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**Delaware**  
(State or other jurisdiction  
of incorporation)

**2836**  
(Primary Standard Industrial  
Classification Code Number)

**22-2372868**  
(IRS Employer  
Identification No.)

**20 Commerce Drive (Suite 135)  
Cranford, New Jersey 07016  
(732) 980-4500**

(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

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**Andrew Rackear  
Chief Executive Officer and Secretary  
20 Commerce Drive (Suite 135)  
Cranford, New Jersey 07016  
(732) 980-4500**

(Name, address, including zip code, and telephone number, including area code, of agent for service)

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*Copies to:*

**Todd E. Mason, Esq.  
Thompson Hine LLP  
335 Madison Avenue, 12th Floor  
New York, New York 10017  
(212) 908-3946**

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**Approximate date of commencement of proposed sale to the public:** As soon as practicable after this Registration Statement becomes effective.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, check the following box.

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	<input type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input checked="" type="checkbox"/>	Smaller reporting company	<input checked="" type="checkbox"/>
Emerging Growth Company	<input type="checkbox"/>		

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act.

**CALCULATION OF REGISTRATION FEE**

<b>Title of Each Class of Securities to be Registered</b>	<b>Amount to be Registered(1)(2)</b>	<b>Proposed Maximum Offering Price Per Share</b>	<b>Proposed Maximum Aggregate Offering Price(3)</b>	<b>Amount of Registration Fee</b>
Common stock, \$0.01 par value per share	36,056,636 shares	\$ 0.15	\$ 5,408,495.40	\$ 590.07

- (1) Represents shares offered by the selling stockholders. Includes an indeterminable number of additional shares of common stock, pursuant to Rule 416 under the Securities Act of 1933, as amended (the “*Securities Act*”), that may be issued to prevent dilution from stock splits, stock dividends or similar transactions that could affect the shares to be offered by the selling stockholders.
- (2) The amount to be registered consists of 36,056,636 shares of common stock, par value \$0.01 per share.
- (3) Estimated solely for the purpose of computing the amount of the registration fee pursuant to Rule 457(c) under the Securities Act of 1933 using the average of the high and low prices of the registrant’s common stock as reported on OTCQX market of the OTC Markets Group, Inc. on November 11, 2020, which was approximately \$0.15 per share.

**The registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, as amended, or until this registration statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to said Section 8(a), may determine.**

**The information in this prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and it is not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.**

**SUBJECT TO COMPLETION, DATED NOVEMBER 12, 2020**

**PRELIMINARY PROSPECTUS**



**36,056,636 Shares of  
Common Stock**

This prospectus relates to the possible resale of up to 36,056,636 shares of our common stock, par value \$0.01 per share (the "*Shares*"), by Icahn Capital LP, together with its affiliates, that are identified as the selling stockholders in this prospectus or in supplements to this prospectus, which Shares were acquired in the open market or from us pursuant to a rights offering, or a private placement completed in connection with the rights offering.

We will receive no proceeds from any sale by the selling stockholders of the Shares covered by this prospectus. We will pay the expenses of registering the Shares, but all selling and other expenses incurred by the selling stockholders will be paid by the selling stockholders. The selling stockholders may from time to time offer and resell, transfer or otherwise dispose of any or all of the Shares covered by this prospectus through underwriters or dealers, directly to purchasers or through broker-dealers or agents. See "Plan of Distribution."

Our common stock is currently quoted on the OTCQX market of the OTC under the symbol "ENZN." On November 11, 2020, the last reported sale price of our common stock was \$0.15 per share. You are urged to obtain current market quotations for our common stock.

You should read this prospectus and any prospectus supplement, together with additional information described under the headings "Incorporation of Certain Information by Reference" and "Where You Can Find More Information," carefully before you invest in any of our securities.

**Investing in our securities involves a high degree of risk. See "Risk Factors" on page 5 of this prospectus.**

**Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus. Any representation to the contrary is a criminal offense.**

**The date of this prospectus is \_\_\_\_\_, 2020**

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You should read this prospectus, including all documents incorporated herein by reference, together with additional information described under “Where You Can Find More Information.”

You may obtain the information incorporated by reference without charge by following the instructions under “Where You Can Find More Information.”

**We have not authorized anyone to provide you with information different from that contained or incorporated by reference in this prospectus. The selling stockholders may offer to sell, and seek offers to buy, shares of our common stock only in jurisdictions where offers and sales are permitted. The information contained in this prospectus is accurate only as of the date of this prospectus, regardless of the time of delivery of this prospectus or of any sale of common stock.**

References in this prospectus to “Enzon,” the “Company,” “we,” “us,” “our,” or “its,” unless the context otherwise requires, refer to Enzon Pharmaceuticals, Inc., a Delaware corporation, together with its consolidated subsidiaries, and references in this prospectus to the “Board of Directors” or “Board,” unless the context otherwise requires, refer to the Board of Directors of Enzon Pharmaceuticals, Inc.

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## ABOUT THIS PROSPECTUS

You should rely only on the information we have provided or incorporated by reference into this prospectus, any applicable prospectus supplement and any related free writing prospectus. We have not authorized anyone to provide you with information different from that contained in this prospectus, any applicable prospectus supplement or any related free writing prospectus. No dealer, salesperson or other person is authorized to give any information or to represent anything not contained in this prospectus, any applicable prospectus supplement or any related free writing prospectus. You must not rely on any unauthorized information or representation. This prospectus is an offer to sell only the Shares offered hereby, but only under circumstances and in jurisdictions where it is lawful to do so. You should assume that the information in this prospectus, any applicable prospectus supplement or any related free writing prospectus is accurate only as of the date on the front of the document and that any information we have incorporated by reference is accurate only as of the date of the document incorporated by reference, regardless of the time of delivery of this prospectus or any sale of a security.

The selling stockholders are offering the Shares only in jurisdictions where such issuances are permitted. The distribution of this prospectus and the issuance of the Shares in certain jurisdictions may be restricted by law. Persons outside the United States who come into possession of this prospectus must inform themselves about, and observe any restrictions relating to, the issuance of the Shares and the distribution of this prospectus outside the United States. This prospectus does not constitute, and may not be used in connection with, an offer to sell, or a solicitation of an offer to buy, the Shares offered by this prospectus by any person in any jurisdiction in which it is unlawful for such person to make such an offer or solicitation.

This prospectus is part of a registration statement that we filed with the U.S. Securities and Exchange Commission (the “*Commission*”), under which the selling stockholders may offer from time to time up to an aggregate of 36,056,636 Shares in one or more offerings. If required, each time the selling stockholders offer Shares, we will provide you with, in addition to this prospectus, a prospectus supplement that will contain specific information about the terms of that offering. We may also authorize one or more free writing prospectuses to be provided to you that may contain material information relating to that offering. We may also use a prospectus supplement and any related free writing prospectus to add, update or change any of the information contained in this prospectus or in documents we have incorporated by reference. This prospectus, together with any applicable prospectus supplements, any related free writing prospectuses and the documents incorporated by reference into this prospectus, includes all material information relating to this offering. To the extent that any statement that we make in a prospectus supplement is inconsistent with statements made in this prospectus, the statements made in this prospectus will be deemed modified or superseded by those made in a prospectus supplement. Please carefully read both this prospectus and any prospectus supplement together with the additional information described below under the section entitled “Incorporation of Certain Information by Reference” before buying any of the securities offered.

This prospectus contains summaries of certain provisions contained in some of the documents described herein, but reference is made to the actual documents for complete information. All of the summaries are qualified in their entirety by the actual documents. Copies of some of the documents referred to herein have been filed, will be filed or will be incorporated by reference as exhibits to the registration statement of which this prospectus is a part, and you may obtain copies of those documents as described below under the section entitled “Where You Can Find More Information.”

## SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus includes “forward-looking statements,” as such term is used within the meaning of the Private Securities Litigation Reform Act of 1995. These “forward-looking statements” are not based on historical fact and involve assessments of certain risks, developments, and uncertainties in our business looking to the future. Such forward-looking statements can be identified by the use of terminology such as “may,” “will,” “should,” “expect,” “anticipate,” “estimate,” “intend,” “continue,” or “believe,” or the negatives or other variations of these terms or comparable terminology. Forward-looking statements may include projections, forecasts, or estimates of future performance and developments. Forward-looking statements contained in this prospectus are based upon assumptions and assessments that we believe to be reasonable as of the date of this prospectus. Whether those assumptions and assessments will be realized will be determined by future factors, developments, and events, which are difficult to predict and may be beyond our control. Actual results, factors, developments, and events may differ materially from those we assumed and assessed. Risks, uncertainties, contingencies, and developments, including those identified in the “Risk Factors” section of this prospectus and in our most recent annual report on Form 10-K, subsequent quarterly reports on Form 10-Q and other filings we make with the Commission pursuant to Section 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, as amended (the “*Exchange Act*”), incorporated by reference herein, could cause our future operating results to differ materially from those set forth in any forward-looking statement. We cannot assure you that any such forward-looking statement, projection, forecast or estimate contained can be realized or that actual returns, results, or business prospects will not differ materially from those set forth in any forward-looking statement. Given these uncertainties, readers are cautioned not to place undue reliance on such forward-looking statements. We disclaim any obligation to update any such factors or to publicly announce the results of any revisions to any of the forward-looking statements contained herein to reflect future results, events or developments.

## PROSPECTUS SUMMARY

*The following summary provides an overview of us and this offering and may not contain all the information that is important to you. This summary is qualified in its entirety by, and should be read together with, the information contained in other parts of this prospectus and the documents we incorporate by reference. You should read this prospectus and any documents that we incorporate by reference carefully in their entirety before making a decision about whether to invest in our securities.*

### **Enzon Pharmaceuticals, Inc.**

We are positioned as a public company acquisition vehicle, where we can become an acquisition platform and more fully utilize our net operating loss carryforwards (“NOLs”) and enhance stockholder value.

In September 2020, we initiated a Rights Offering for our common and preferred stock which closed in October 2020, and we realized \$43.6 million in gross proceeds. This has enabled us to embark on our plan to realize the value of our more than \$100 million net NOLs by acquiring potentially profitable businesses or assets. To protect the NOLs, in August 2020, our Board of Directors adopted a Section 382 rights plan.

Historically, we have received royalty revenues from licensing arrangements with other companies primarily related to sales of certain drug products that utilized Enzon’s proprietary technology. In recent years, we have had no clinical operations and limited corporate operations. We have a series of licensing agreements in the drug Vicineum, which, if approved, will potentially generate milestone and royalty payments to us in the future. We cannot assure you that we will earn material future royalties or milestones.

### **Corporate Information**

Our principal address is 20 Commerce Drive, Suite 135, Cranford, New Jersey, 07016. Our telephone number is (732) 980-4500.

## The Offering

<b>Common stock offered by selling stockholders</b>	This prospectus covers the resale of a total of 36,056,636 Shares of our common stock.
<b>Offering price</b>	The selling stockholders will sell their Shares at prevailing market prices or privately negotiated prices.
<b>Common stock outstanding</b>	74,214,603 shares (as of November 10, 2020).
<b>Use of proceeds</b>	We will not receive any proceeds from the sale of the Shares in this offering. See “Use of Proceeds.”
<b>Dividend policy</b>	In April 2013, we announced that we intended to distribute excess cash, expected to arise from royalty revenues, in the form of periodic dividends to stockholders. Since that time, we have paid out an aggregate of approximately \$149 million in dividends to our stockholders. In addition, as our common stock ranks junior to our recently issued Series C preferred stock, unless full dividends (i) have been paid, (ii) redeemed in an amount in excess of the initial liquidation value of \$1,000 or (iii) set aside for payment on all such outstanding Series C preferred stock for all dividends or increases in the liquidation value in excess of the initial liquidation amount of \$1,000 of such Series C preferred stock, no cash dividends may be declared or paid on our common stock.
<b>Risk factors</b>	Investing in our common stock involves a high degree of risk. You should carefully read and consider the information on page 5 of this prospectus set forth under the headings “Risk Factors” and all other information set forth in this prospectus and the documents incorporated herein by reference before deciding to invest in our common stock.
<b>Market for our shares</b>	Our common stock is quoted on the OTCQX market of the OTC under the symbol “ENZN.”



## RISK FACTORS

Investing in our securities involves a high degree of risk. Prior to making a decision about investing in our securities, you should carefully consider the specific risk factors discussed in the sections entitled “Risk Factors” contained in our [annual report on Form 10-K for the fiscal year ended December 31, 2019](#) under the heading “Item 1A. Risk Factors,” and as described or may be described in any subsequent quarterly report on Form 10-Q under the heading “Item 1A. Risk Factors,” as well as in any applicable prospectus supplement and contained or to be contained in our filings with the Commission and incorporated by reference in this prospectus, together with all of the other information contained in this prospectus, or any applicable prospectus supplement. For a description of these reports and documents, and information about where you can find them, see “Where You Can Find More Information” and “Incorporation of Certain Information by Reference.” If any of the risks or uncertainties described in our SEC filings or any prospectus supplement or any additional risks and uncertainties actually occur, our business, financial condition and results of operations could be materially and adversely affected. In that case, the trading price of our securities could decline and you might lose all or part of the value of your investment.

### ***Our common stock ranks junior to our Series C Preferred Stock.***

With respect to the payment of cash dividends and amount payable in the event our liquidation, dissolution or winding up, our common stock will rank junior to our recently issued Series C preferred stock. This means that, unless full dividends have been paid, redeemed in an amount in excess of the initial liquidation value of \$1,000 or set aside for payment on all outstanding Series C preferred stock for all dividends or increases in the liquidation value in excess of the initial liquidation amount of \$1,000, no cash dividends may be declared or paid on our common stock. Likewise, in the event of our voluntary or involuntary liquidation, dissolution or winding up, no distribution of our assets may be made to holders of our common stock until we have paid to the holders of our Series C preferred stock the liquidation preference related to such Series C preferred stock, plus in each case any accrued and unpaid dividends.

### ***The interests of our significant stockholders may conflict with the interests of other stockholders.***

Mr. Carl C. Icahn, directly and indirectly, beneficially owns approximately 48% of the outstanding shares of our common stock. Mr. Icahn may have interests that are different from, in addition to or not always consistent with our interests or with the interests of our other stockholders. To the extent that conflicts of interest may arise between us and Mr. Icahn and his affiliates, those conflicts may be resolved in a manner adverse to us or our other stockholders. In addition, the existence of significant stockholders may have the effect of making it difficult for, or may discourage or delay, a third party from seeking to acquire a majority of our outstanding common stock, which may adversely affect the market price of our common stock.

### ***We have adopted a Section 382 Rights Plan, which may discourage a corporate takeover.***

On August 14, 2020, our Board of Directors adopted a Section 382 rights plan (the “Section 382 Rights Plan”) and declared a dividend distribution of one right for each outstanding share of our common stock to stockholders of record at the close of business on August 24, 2020. Each share of our common stock issued thereafter will also include one right. Each right entitles its holder, under certain circumstances, to purchase from us one one-thousandth of a share of our Series A-1 Junior Participating Preferred Stock, par value \$0.01 per share, at an exercise price of \$1.20 per right, subject to adjustment.

The Board adopted the Section 382 Rights Plan in an effort to protect stockholder value by attempting to protect against a possible limitation on our ability to use our net operating loss carryforwards. We may utilize these net operating loss carryforwards in certain circumstances to offset future U.S. taxable income and reduce our U.S. federal income tax liability. Because the Section 382 Rights Plan could make it more expensive for a person to acquire a controlling interest in us, it could have the effect of delaying or preventing a change in control even if a change in control was in our stockholders’ interest.

***Anti-takeover provisions in our charter documents and under Delaware corporate law may make it more difficult to acquire us, even though such acquisitions may be beneficial to our stockholders.***

In addition to our Section 382 Rights Plan, provisions of our certificate of incorporation and by-laws, as well as provisions of Delaware corporate law, could make it more difficult for a third party to acquire us, even though such acquisitions may be beneficial to our stockholders. These anti-takeover provisions include:

- lack of a provision for cumulative voting in the election of directors;
- the ability of our Board of Directors to authorize the issuance of “blank check” preferred stock to increase the number of outstanding shares and thwart a takeover attempt;
- advance notice requirements for nominations for election to our Board of Directors or for proposing matters that can be acted upon by stockholders at stockholder meetings; and
- limitations on who may call a special meeting of stockholders.

The provisions described above, our Section 382 Rights Plan, and provisions of Delaware corporate law relating to business combinations with interested stockholders, along with the significant amount of common stock beneficially owned by Mr. Icahn, may discourage, delay or prevent a third party from acquiring us. These provisions may also discourage, delay or prevent a third party from acquiring a large portion of our securities, or initiating a tender offer, even if our stockholders might receive a premium for their shares in the acquisition over the then-current market price.

## USE OF PROCEEDS

This prospectus relates to Shares of our common stock that may be offered and sold from time to time by the selling stockholders. We will not receive any proceeds upon the sale of Shares by the selling stockholders.

The selling stockholders will pay any discounts, commissions, and fees of underwriters, selling brokers, dealer managers or similar securities industry professionals incurred by them in disposing of the Shares covered by this prospectus. We will bear all other costs, fees and expenses incurred in effecting the registration of the Shares covered by this prospectus and any accompanying prospectus supplement, including, without limitation, all registration and filing fees, and fees and expenses of our counsel and our accountants.

## SELLING STOCKHOLDERS

The selling stockholders may from time to time offer and sell any or all of the Shares set forth below pursuant to this prospectus. When we refer to the “selling stockholders” in this prospectus, we mean the entities listed in the table below, and their respective pledgees, donees, permitted transferees, assignees, successors and others who later come to hold any of the selling stockholders’ interests in the Shares other than through a public sale.

The following table sets forth, as of the date of this prospectus, the name of the selling stockholders for whom we are registering shares for resale to the public, the number of Shares beneficially owned by the selling stockholders prior to this offering, the total number of Shares that the selling stockholders may offer pursuant to this prospectus and the number of Shares that the selling stockholders will beneficially own after this offering.

Except as noted herein, the selling stockholders do not have, or within the past three years have not had, any material relationship with us or any of our predecessors or affiliates and the selling stockholders are not or were not affiliated with registered broker-dealers. On September 1, 2020, we entered into a non-exclusive Investment Agreement with Icahn Capital LP in connection with our recently completed rights offering whereby Icahn Capital LP, together with its affiliates, owned at such time approximately 15% of our outstanding shares of common stock. Pursuant to the Investment Agreement, Icahn Capital LP agreed to subscribe for its pro-rata share of our rights offering and to purchase all units that remained unsubscribed for at the expiration of our rights offering to the extent that other holders elected not to exercise all of their respective subscription rights.

Pursuant to the rights offering, Icahn Capital LP, together with its affiliates, subscribed for 5,971 units (its pro-rata share of the rights offering) representing the purchase of 4,478,250 shares of common stock and 5,971 shares of Series C preferred stock). In addition, Icahn Capital LP also purchased all units that remained unsubscribed for at the expiration of the rights offering to the extent that other holders elected not to exercise all of their respective subscription rights, which totaled 33,306 units representing the purchase of 24,979,500 shares of common stock and 33,306 shares of Series C preferred stock. Following the completion of the rights offering, Icahn Capital LP, together with its affiliates, owned approximately 48% of our outstanding common stock and approximately 98% of our outstanding Series C preferred stock.

No fees were paid by the Company to Icahn Capital LP in consideration of such investment commitment. In connection with the execution of the Investment Agreement, the parties agreed to terminate the Standstill Agreement, dated December 18, 2016, by and between the Company, Icahn Capital LP and the other affiliated parties identified therein, so that it is of no further force or effect; and waived the applicability of Section 203 of the Delaware General Corporation Law of the State of Delaware to Icahn Capital LP and its affiliates. In addition, we agreed to use our best efforts to register for resale all of the shares of our common stock held by Icahn Capital LP and its affiliates following the closing of our rights offering which form the basis for this selling stockholder registration statement of which this prospectus is a part.

This prospectus covers the resale of 36,056,636 shares of common stock beneficially owned by the selling stockholders which were previously acquired in either the open market or, as described above, in the rights offering or the private placement completed in conjunction with the rights offering.

Based on the information provided to us by the selling stockholders, assuming that the selling stockholders sells all of the Shares being registered hereby, the selling stockholders will not own any shares other than those appearing in the column entitled “Beneficial Ownership After This Offering.” We cannot advise you as to whether any selling stockholder will in fact sell any or all of such Shares. In addition, the selling stockholders may have sold, transferred or otherwise disposed of, or may sell, transfer or otherwise dispose of, at any time and from time to time, the shares of our common stock in transactions exempt from the registration requirements of the Securities Act after the date on which it provided the information set forth in the table below.

Name	Shares of Common Stock Owned Prior to this Offering	Shares of Common Stock Being Offered	Beneficial Ownership After this Offering (1)	
			Number of Shares	% (2)
Carl C. Icahn and affiliated entities (3)	36,056,636	36,056,636	0	0

(1) Assumes the sale of all Shares registered pursuant to this prospectus, although the selling stockholders are under no obligation known to us to sell any shares of common stock at this time.

- (2) Based on 74,214,603 shares of common stock outstanding on November 10, 2020.
- (3) Information concerning stock ownership was obtained from Amendment No. 13 to the Schedule 13D filed with the Commission on October 14, 2020 by Carl C. Icahn and various entities affiliated with him, including Icahn Partners Master Fund LP (“*Icahn Master*”), Icahn Offshore LP (“*Icahn Offshore*”), Icahn Partners LP (“*Icahn Partners*”), Icahn Onshore LP (“*Icahn Onshore*”), Icahn Capital LP (“*Icahn Capital*”), IPH GP LLC (“*IPH*”), Icahn Enterprises Holdings L.P. (“*Icahn Enterprises Holdings*”), Icahn Enterprises G.P. Inc. (“*Icahn Enterprises GP*”), and Beckton Corp. (“*Beckton*” and, together with the foregoing entities, the “*Icahn Entities*”).

The address for Carl C. Icahn and entities affiliated with him is 16690 Collins Avenue, Suite PH-1, Sunny Isles Beach, FL 33160 (as reported in Amendment No. 13 to the Schedule 13D/A filed with the Commission on October 14, 2020).

Pursuant to the Schedule 13D/A, the Icahn Entities own 36,056,636 shares of common stock, of which (i) Icahn Master has sole voting and dispositive power with regard to 14,923,911 shares (each of Icahn Offshore, Icahn Capital, IPH, Icahn Enterprises Holdings, Icahn Enterprises GP, Beckton and Mr. Icahn has shared voting power and shared dispositive power with regard to such shares), and (ii) Icahn Partners has sole voting and dispositive power with regard to 21,132,725 shares (Icahn Onshore, Icahn Capital, IPH, Icahn Enterprises Holdings, Icahn Enterprises GP, Beckton and Mr. Icahn has shared voting power and shared dispositive power with regard to such shares).

Each of Icahn Offshore, Icahn Capital, IPH, Icahn Enterprises Holdings, Icahn Enterprises GP, Beckton and Mr. Icahn, by virtue of their relationships to Icahn Master (as disclosed in Item 2), may be deemed to indirectly beneficially own (as that term is defined in Rule 13d-3 under the Act) the Shares and Preferred Stock, which Icahn Master directly beneficially owns. Each of Icahn Offshore, Icahn Capital, IPH, Icahn Enterprises Holdings, Icahn Enterprises GP, Beckton and Mr. Icahn disclaims beneficial ownership of such Shares and Preferred Stock for all other purposes. Each of Icahn Onshore, Icahn Capital, IPH, Icahn Enterprises Holdings, Icahn Enterprises GP, Beckton and Mr. Icahn, by virtue of their relationships to Icahn Partners (as disclosed in Item 2), may be deemed to indirectly beneficially own (as that term is defined in Rule 13d-3 under the Act) the Shares and Preferred Stock, which Icahn Partners directly beneficially owns. Each of Icahn Onshore, Icahn Capital, IPH, Icahn Enterprises Holdings, Icahn Enterprises GP, Beckton and Mr. Icahn disclaims beneficial ownership of such Shares and Preferred Stock for all other purposes.

## PLAN OF DISTRIBUTION

The Shares offered by this prospectus are being offered by Icahn Capital LP, together with its affiliates, as selling stockholders. The Shares may be sold or distributed from time to time by the selling stockholders directly to one or more purchasers or through brokers, dealers, or underwriters who may act solely as agents at market prices prevailing at the time of sale, at prices related to the prevailing market prices, at negotiated prices, or at fixed prices, which may be changed. The sale of the Shares offered by this prospectus may be effected in one or more of the following methods:

- ordinary brokers' transactions;
- transactions involving cross or block trades;
- through brokers, dealers, or underwriters who may act solely as agents;
- "at the market" into an existing market for the common stock;
- in other ways not involving market makers or established business markets, including direct sales to purchasers or sales effected through agents;
- in privately negotiated transactions; or
- any combination of the foregoing.

In order to comply with the securities laws of certain states, if applicable, the shares may be sold only through registered or licensed brokers or dealers. In addition, in certain states, the shares may not be sold unless they have been registered or qualified for sale in the state or an exemption from the registration or qualification requirement is available and complied with.

The selling stockholders may transfer the Shares by other means not described in this prospectus.

Brokers, dealers, underwriters, or agents participating in the distribution of the Shares as agents may receive compensation in the form of commissions, discounts, or concessions from the selling stockholder and/or purchasers of the common stock for whom the broker-dealers may act as agent. The selling stockholders have informed us that each such broker-dealer will receive commissions from selling stockholders, which will not exceed customary brokerage commissions.

Each selling stockholder that sells Shares pursuant to this prospectus may be deemed to be an "underwriter" within the meaning of the Securities Act. Any commissions received by a broker or dealer in connection with resales of our common stock may be deemed to be underwriting commissions or discounts under the Securities Act.

Neither we nor the selling stockholders can presently estimate the amount of compensation that any agent will receive. We know of no existing arrangements between the selling stockholders, any other stockholder, broker, dealer, underwriter, or agent relating to the sale or distribution of the shares offered by this prospectus. At the time a particular offer of Shares is made, a prospectus supplement, if required, will be distributed that will set forth the names of any agents, underwriters, or dealers and any compensation from the selling stockholders, and any other required information.

We will pay all of the expenses incident to the registration, offering, and sale of the shares to the public other than commissions or discounts of underwriters, broker-dealers, or agents. We intend to enter into an agreement with the selling stockholders providing for indemnification against certain liabilities in connection with the offering of Shares offered hereby, including liabilities arising under the Securities Act or, if such indemnity is unavailable, to contribute amounts required to be paid in respect of such liabilities. The selling stockholders have agreed to indemnify us against liabilities under the Securities Act that may arise from certain written information furnished to us by the selling stockholders specifically for use in this prospectus or, if such indemnity is unavailable, to contribute amounts required to be paid in respect of such liabilities.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to our directors, officers, and controlling persons, we have been advised that in the opinion of the Commission this indemnification is against public policy as expressed in the Securities Act and is therefore, unenforceable.

We have advised the selling stockholders that while they are engaged in a distribution of the Shares included in this prospectus it is required to comply with Regulation M promulgated under the Securities Exchange Act. With certain exceptions, Regulation M precludes the selling stockholders, any affiliated purchasers, and any broker-dealer or other person who participates in the distribution from bidding for or purchasing, or attempting to induce any person to bid for or purchase, any security which is the subject of the distribution until the entire distribution is complete. Regulation M also prohibits any bids or purchases made in order to stabilize the price of a security in connection with the distribution of that security. All of the foregoing may affect the marketability of the shares offered hereby this prospectus.

We may suspend the sale of Shares by the selling stockholders pursuant to this prospectus for certain periods of time for certain reasons, including if the prospectus is required to be supplemented or amended to include additional material information.

This offering will terminate on the date that all Shares offered by this prospectus have been sold by the selling stockholders.

Our common stock is currently quoted on the OTCQX market of the OTC under the symbol "ENZN."

## DESCRIPTION OF SECURITIES

The following descriptions of our capital stock, Certificate of Incorporation (including the Certificates of Designations), By-Laws and Section 382 Rights Agreement are only summaries, and we encourage you to review complete copies of our organizational documents and the Section 382 Rights Agreement, which are incorporated by reference as exhibits to the registration statement of which this prospectus forms a part. You can obtain copies of these documents by following the directions outlined in “Where You Can Find More Information” elsewhere in this prospectus.

### **General**

Our authorized capital stock consists of: (i) 170,000,000 shares of common stock and (ii) 3,000,000 shares of preferred stock, par value \$.01 per share.

Our common stock is currently quoted on the OTCQX market of the OTC under the symbol “ENZN.”

### **Common Stock**

#### ***Dividends***

Holders of common stock are entitled to receive dividends when, as and if declared by our Board of Directors out of funds legally available for their payment, subject to the rights of holders of any preferred stock that may be issued and outstanding and to restrictions contained in agreements to which we are a party.

#### ***Voting Rights***

Each holder of our common stock is entitled to one vote per share on all matters submitted to a vote of stockholders. Generally, a matter submitted for stockholder action shall be approved if the votes cast “for” the matter exceed the votes cast “against” such matter, unless a greater or different vote is required by statute, any applicable law or regulation, the rights of any authorized series of preferred stock, or our Certificate of Incorporation or By-Laws. Other than in a contested election where directors are elected by a plurality vote, a director nominee shall be elected to the Board of Directors if the votes cast “for” such nominee’s election exceed the votes cast “against” such nominee’s election. Subject to any rights of the holders of any series of preferred stock pursuant to applicable law or the Certificate of Designations creating that series, all voting rights are vested in the holders of shares of our common stock. Holders of shares of our common stock do not have cumulative voting rights.

#### ***Rights Upon Liquidation***

Upon our liquidation, dissolution or winding up, the holders of common stock are entitled to share ratably in our net assets available after the payment of all debts and other liabilities, and after the satisfaction of the rights of any outstanding preferred stock.

#### ***Other Rights***

Holders of our common stock have no preemptive, redemption or conversion rights, nor are they entitled to the benefit of any sinking fund. The outstanding shares of common stock are validly issued, fully paid and non-assessable.

### **Preferred Stock**

Our Board of Directors is authorized, without further action by our stockholders, to issue up to 3,000,000 shares of “blank check” preferred stock, in one or more series, and to fix the designations, powers, preferences and the relative, participating, optional or other special rights and any qualifications, limitations and restrictions of the shares of each series of preferred stock.



Of our currently authorized preferred stock, (i) 600,000 shares were previously designated as Series B Preferred Stock in connection with our rights plan, which expired on May 16, 2012, (ii) 100,000 shares were previously designated as Series A Junior Participating Preferred Stock in connection with our previous Section 382 rights plan, which expired on April 30, 2017, (iii) 100,000 shares are currently designated as Series A-1 Junior Participating Preferred Stock in connection with our Section 382 Rights Plan (as defined below) adopted on August 14, 2020 and (iv) 40,000 shares are designated as Series C Preferred Stock that were issued in connection with the Rights Offering.

### ***Series A-1 Junior Participating Preferred Stock***

Pursuant to the Certificate of Designation of Series A-1 Junior Participating Preferred Stock ("*Series A-1 Preferred Stock*"), we may issue 100,000 shares of Series A-1 Preferred Stock.

#### *Ranking*

The Series A-1 Preferred Stock ranks junior to all other series of our preferred stock as to the payment of dividends and the distribution of assets, whether or not upon the dissolution, liquidation or winding up of our company, unless the terms of any such series provides otherwise.

#### *Proportional Adjustment*

In the event that we shall (i) declare any dividend on common stock payable in shares of common stock, (ii) subdivide the outstanding common stock or (iii) combine the outstanding common stock into a smaller number of shares, then in each such case we shall simultaneously effect a proportional adjustment to the number of outstanding shares of Series A-1 Preferred Stock.

#### *Dividend Rights*

Subject to the prior and superior right of the holders of any shares of any series of preferred stock ranking prior and superior to the shares of Series A-1 Preferred Stock with respect to dividends, the holders of shares of Series A-1 Preferred Stock, in preference to the holders of common stock, will be entitled to receive when, as and if declared by the Board of Directors out of funds legally available for the purpose, quarterly dividends payable in cash on the last business day of March, June, September and December in each year (referred to as a "*quarterly dividend payment date*"), commencing on the first quarterly dividend payment date after the first issuance of a share or fraction of a share of Series A-1 Preferred Stock, in an amount per share (rounded to the nearest cent) equal to the greater of (a) \$1.20 or (b) subject to adjustment as set forth in the Certificate of Designation, 1,000 times the aggregate per share amount of all cash dividends, and 1,000 times the aggregate per share amount (payable in kind) of all non-cash dividends or other distributions other than a dividend payable in shares of common stock or a subdivision of the outstanding shares of common stock (by reclassification or otherwise), declared on the common stock since the immediately preceding quarterly dividend payment date, or, with respect to the first quarterly dividend payment date, since the first issuance of any share or fraction of a share of Series A-1 Preferred Stock.

We will be required to declare a dividend or distribution on the Series A-1 Preferred Stock as provided in the preceding paragraph immediately after we declare a dividend or distribution on the common stock (other than a dividend payable in shares of common stock).

Dividends will begin to accrue and be cumulative on outstanding shares of Series A-1 Preferred Stock from the quarterly dividend payment date first following the date of issue of such shares of Series A-1 Preferred Stock, unless the date of issue of such shares is prior to the record date for the first quarterly dividend payment date, in which case dividends on such shares will begin to accrue from the date of issue of such shares, or unless the date of issue is a quarterly dividend payment date or is a date after the record date for the determination of holders of shares of Series A-1 Preferred Stock entitled to receive a quarterly dividend and before such quarterly dividend payment date, in either of which events such dividends will begin to accrue from such quarterly dividend payment date. Accrued but unpaid dividends will not bear interest. Dividends paid on the shares of Series A-1 Preferred Stock in an amount less than the total amount of such dividends at the time accrued and payable on such shares will be allocated pro rata on a share-by-share basis among all such shares at the time outstanding.

### *Voting Rights*

Each share of Series A-1 Preferred Stock will entitle the holder thereof to 1,000 votes on all matters submitted to a vote of our stockholders. Except as otherwise provided in the Certificate of Designation or by law, the holders of Series A-1 Preferred Stock and the holders of common stock will vote together as one class on all matters submitted to a vote of our stockholders.

### *Certain Restrictions on Dividends*

Whenever quarterly dividends or other dividends or distributions payable on the Series A-1 Preferred Stock as described above are in arrears, we will be restricted in our ability to declare or pay dividends on, redeem or purchase or otherwise acquire for consideration, or make other distributions of shares of stock ranking junior to, or on parity with, the Series A-1 Preferred Stock (subject to specified exceptions for stock ranking on a parity with the Series A-1 Preferred Stock). In such event, we will also be restricted in our ability to purchase shares of Series A-1 Preferred Stock.

### *Distribution Upon Liquidation, Dissolution or Winding Up*

Upon any liquidation, dissolution or winding up of our company, the holders of shares of Series A-1 Preferred Stock will be entitled to receive an amount per share equal to \$1,200 per share of Series A-1 Preferred Stock, plus an amount equal to accrued and unpaid dividends and distributions thereon, whether or not declared, to the date of such payment.

### *Exchange Upon Consolidation or Merger*

In the event we enter into any consolidation, merger, combination or other transaction in which the shares of our common stock are exchanged for or changed into other stock or securities, cash and/or any other property, then in any such case each share of Series A-1 Preferred Stock shall at the same time be similarly exchanged or changed into an amount per share equal to 1,000 times the aggregate amount of stock, securities, cash and/or any other property (payable in kind), as the case may be, for which or into which each share of common stock is exchanged or changed.

### *No Redemption*

Shares of Series A-1 Preferred Stock are not redeemable.

### *Amendment*

Our Certificate of Incorporation may not be amended in any manner which would materially alter or change the powers, preferences or special rights of the shares of Series A-1 Preferred Stock so as to affect them adversely without the affirmative vote of the holders of a majority of the outstanding shares of Series A-1 Preferred Stock, voting separately as a class.

### ***Series C Preferred Stock***

Pursuant to the Certificate of Designation of Series C Non-Convertible Redeemable Preferred Stock ("*Series C Preferred Stock*"), we may issue 40,000 shares of Series C Preferred Stock.

The Series C Preferred Stock is fully paid and non-assessable as issued. Holders of the Series C Preferred Stock do not have preemptive or similar rights to acquire any of our capital stock. Holders do not have the right to convert Series C Preferred Stock into, or exchange shares of Series C Preferred Stock for, shares of any other class or series of shares or other securities of ours. The Series C Preferred Stock has no stated maturity and will not be subject to any sinking fund, retirement fund or purchase fund.

### *Ranking*

The Series C Preferred Stock ranks senior to all junior securities with respect to payment of dividends and distributions of assets upon our liquidation, dissolution or winding up, whether voluntary or involuntary. For purposes of the Certificate of Designation of Series C Preferred Stock, “*junior securities*” means collectively, our common stock and any other class of securities that is specifically designated as junior to the Series C Preferred Stock, including, but not limited to, our Series A-1 Junior Participating Preferred Stock.

We may in the future issue one or more series of preferred stock that ranks senior to, junior to or *pari passu* with, the Series C Preferred Stock.

### *Dividends*

On an annual basis, our Board of Directors may, at its sole discretion, cause a dividend with respect to the Series C Preferred Stock to be paid in cash to the holders in an amount equal to 3% of the liquidation preference as in effect at such time (initially \$1,000 per share). If the dividend is not so paid in cash, the liquidation preference will be adjusted and increased annually by an amount equal to 5% of the liquidation preference per share as in effect at such time, that is not paid in cash to the holders on such date. The initial dividend payments for the period of time between the initial issuance date and the first dividend payment date, if applicable, shall be prorated. Due to our ability to pay dividends on our Series C Preferred Stock in kind by increasing the liquidation preference of the shares of our Series C Preferred Stock, the payment of accrued dividends in cash may be deferred until the redemption by us or the holders, as applicable, of the Series C Preferred Stock, or until our dissolution, liquidation or winding up. No plan, arrangement or agreement is currently in place that would prevent us from paying a dividend with respect to the Series C Preferred Stock in cash.

All accrued and accumulated dividends on the shares of Series C Preferred Stock will be paid prior to, and in preference to, any dividend on any securities ranking junior to the Series C Preferred Stock and will be fully declared and paid before any dividends are declared and paid, or any other distributions or redemptions are made, on any junior securities, *provided that* (a) we will be permitted to declare or pay any dividend or distribution payable on the shares of our common stock in shares of common stock and (b) in the event that, as of the applicable measurement date, there are shares of our Series A-1 Junior Participating Preferred Stock issued and outstanding, we will be permitted to declare or pay any dividend or distribution on the Series A-1 Junior Participating Preferred Stock pursuant to the Certificate of Designation for the Series A-1 Junior Participating Preferred Stock. As our common stock ranks junior to the Series C Preferred Stock, unless full dividends have been paid, redeemed in an amount in excess of the initial liquidation value of \$1,000 or set aside for payment on all outstanding Preferred Stock for all dividends or increases in the liquidation value in excess of the initial liquidation amount of \$1,000, no cash dividends may be declared or paid on our common stock otherwise.

### *No Conversion*

Holders do not have the right to convert Series C Preferred Stock into, or exchange Series C Preferred Stock for, any other securities or property of the Company.

### *Voting Rights*

Except as otherwise provided by law, the holders of Series C Preferred Stock do not have any special voting rights and their consent is not required for taking any corporate action. However, we must obtain the prior written consent of the holders of Series C Preferred Stock in order to amend the Certificate of Designation governing the Series C Preferred Stock, including, under certain circumstances, in connection with a merger, consolidation or other transaction between us and another entity. See “—Amendment and Waiver” below.

### *Redemption*

The Series C Preferred Stock is not subject to any mandatory redemption, sinking fund, retirement fund, purchase fund or other similar provisions.

On and after November 1, 2022, we will have the option to redeem the shares of Series C Preferred Stock in whole or in part at any time for an amount equal to the liquidation preference per share as in effect at such time. There is no prohibition on the repurchase or redemption of shares while there is any arrearage in the payment of dividends. The Series C Preferred Stock is also redeemable at the option of the holders if we undergo a “change of control” which is defined as the earliest to occur of (a) the date on which a majority of the members of our Board of Directors are not Continuing Directors and (b) the date on which a “person” or “group” (within the meaning of Section 13(d)(3) of the Exchange Act) beneficially owns in excess of 50% of our common stock. A “Continuing Director” means (a) each of the individually identified three directors constituting the Board of Directors as of the date of the Certificate of Designation governing the Series C Preferred Stock (the “Current Directors”), (b) directors whose nomination for election by the stockholders or by the directors to fill vacancies is approved by a majority of the Current Directors then serving, or (c) any successor directors whose nomination for election by the stockholders or by the directors to fill vacancies is approved by a majority of the Continuing Directors or the successor Continuing Directors then in office.

Our ability to redeem the Series C Preferred Stock as described above may be limited by the terms of our agreements governing our existing and future indebtedness and by the provisions of other existing and future agreements.

#### *Liquidation Rights*

The Series C Preferred Stock have a preference upon dissolution, liquidation or winding up of our company in respect of assets available for distribution to holders of our junior securities. The liquidation preference of the Series C Preferred Stock is initially \$1,000 per share. On an annual basis, our Board of Directors may in its sole discretion, cause a dividend with respect to the Series C Preferred Stock to be paid in cash to the holders in an amount equal to 3% of the liquidation preference as in effect at such time. If the dividend is not so paid in cash, the liquidation preference will be adjusted and increased annually by an amount equal to 5% of the liquidation preference per share as in effect at such time, that is not paid in cash to the holders on such date. The annual accretion will continue until the shares are redeemed, or until we liquidate, dissolve or wind-up our affairs.

#### *Amendment and Waiver*

No provision of the Certificate of Designation governing the Series C Preferred Stock may be amended, modified or waived without the affirmative vote of the holders of two-thirds (2/3) of the outstanding shares of Series C Preferred Stock, voting separately as a class, and any such written amendment, modification or waiver will be binding upon us and each holder of Series C Preferred Stock, *provided* that the prior written consent of each holder of outstanding shares of Series C Preferred Stock will be required in order to change or waive (i) the definition of “Liquidation Preference Adjustment” in the Certificate of Designation, (ii) the rate at which or the manner in which dividends on the Series C Preferred Stock accrue or accumulate or the times at which such dividends become payable, or (iii) the provision governing the amendment, modification or waiver of any provision of the Certificate of Designation.

We are prohibited from amending, modifying or waiving the terms or relative priorities of the Series C Preferred Stock through a merger, consolidation or other transaction with another entity unless we have obtained the prior written consent of the holders of Series C Preferred Stock.

#### *No Market*

The Series C Preferred Stock have not been listed for trading or quoted on any securities exchange or recognized trading system.

#### *Transfer Agent*

Continental Stock Transfer & Trust Company is the transfer agent for the Preferred Stock. The address of Continental Stock Transfer & Trust Company is 1 State Street, 30<sup>th</sup> Floor, New York, New York 10004.

## Section 382 Rights Plan

On August 14, 2020 (the “*Rights Dividend Declaration Date*”), our Board of Directors adopted the Section 382 Rights Plan and declared a dividend distribution of one right for each outstanding share of common stock, to stockholders of record at the close of business on August 24, 2020. Each right entitles its holder, under certain circumstances described below, to purchase from us one one-thousandth of a share of our Series A-1 Preferred Stock at an exercise price of \$1.20 per right, subject to adjustment (referred to as the “*purchase price*”). The description and terms of the rights are set forth in a Section 382 Rights Agreement, dated as of August 14, 2020, by and between us and Continental Stock Transfer & Trust Company, as Rights Agent (the “*Section 382 Rights Agreement*”).

Our Board of Directors adopted the Section 382 Rights Plan in an effort to protect stockholder value by attempting to protect against a possible limitation on our ability to use our net operating loss carryforwards. If we experience an “ownership change,” as defined in Section 382 of the Internal Revenue Code (the “*Code*”), our ability to fully utilize the net operating loss carryforwards on an annual basis will be substantially limited, and the timing of the usage of the net operating loss carryforwards could be substantially delayed, which could therefore significantly impair the value of those benefits. The Section 382 Rights Plan is intended to act as a deterrent to any person (an “*Acquiring Person*”) acquiring (together with all affiliates and associates of such person) beneficial ownership of 4.9% or more of our outstanding common stock within the meaning of Section 382 of the Code, without the approval of our Board of Directors. Stockholders who beneficially owned 4.9% or more of our outstanding common stock as of the Rights Dividend Declaration Date will not be deemed to be an Acquiring Person.

### *The Rights under the Section 382 Rights Plan*

Initially, the rights are associated with shares of common stock certificates or, in the case of uncertificated shares of common stock, the book-entry account that evidences record ownership of such shares, which contain a notation incorporating the Section 382 Rights Plan by reference, and are transferable with and only with the underlying shares of common stock. New rights will attach to any shares of common stock that become outstanding after the record date and prior to the earlier of the Distribution Date (as defined below) and the expiration date of the Section 382 Rights Plan. If Series A-1 Preferred Stock is issued upon exercise of the rights, each fractional share of Series A-1 Preferred Stock would give the stockholder approximately the same dividend, voting and liquidation rights as does one share of our common stock. However, prior to exercise, a right does not give its holder any rights as a stockholder of our company, including any dividend, voting or liquidation rights.

### *Initial Exercisability*

Subject to certain exceptions, the rights issued under the Section 382 Rights Plan are not exercisable until the “Distribution Date,” which occurs upon the earlier of:

- the close of business on the tenth day after the “Stock Acquisition Date,” which is (a) the first date of public announcement that an Acquiring Person has become such or (b) such earlier date as a majority of our Board of Directors has become aware of the existence of an Acquiring Person (in each case, subject to certain exceptions), or
- the close of business on the tenth business day (or such later date as may be determined by our Board of Directors prior to such time as any person or group becomes an Acquiring Person) following the commencement of a tender offer or exchange offer which, if consummated, would result in a person or group becoming an Acquiring Person.

Any existing stockholder or group that beneficially owns 4.9% or more of our common stock has been grandfathered at its ownership level as of the Rights Dividend Declaration Date, but the rights will not be exercisable if, at any time after the announcement of the Section 382 Rights Plan, such stockholder or group increases its ownership of common stock by one share of common stock. Certain synthetic interests in securities created by derivative positions, whether or not such interests are considered to be ownership of the underlying common stock or are reportable for purposes of Regulation 13D of the Exchange Act, are treated as beneficial ownership of the number of shares of common stock equivalent to the economic exposure created by the derivative position, to the extent actual shares of common stock are directly or indirectly held by counterparties to the derivatives contracts.

### ***Separation and Distribution of Subscription Rights***

Until the earlier of the Distribution Date and the expiration date of the Section 382 Rights Plan, the surrender for transfer of any shares of common stock will also constitute the transfer of the rights associated with those shares. As soon as practicable after the Distribution Date, separate rights certificates will be mailed to holders of record of common stock as of the close of business on the Distribution Date. From and after the Distribution Date, the separate rights certificates alone will represent the rights, and the rights may be transferred apart from the transfer of the underlying shares of common stock, unless and until the Board of Directors has determined to effect an exchange pursuant to the Section 382 Rights Agreement (as described below).

### ***Expiration Date***

The Section 382 Rights Agreement will expire on the earliest of the following:

- the close of business on August 13, 2021 (the “*final expiration date*”);
- the redemption of the rights;
- the exchange of the rights;
- the close of business on the effective date of the repeal of Section 382 of the Code or any successor statute if our Board of Directors determines that the Section 382 Rights Agreement is no longer necessary or desirable for the preservation of certain tax benefits; or
- the close of business on the first day of a taxable year to which the Board determines that no tax benefits may be carried forward.

### ***“Flip-In” Event***

In the event that a person becomes an Acquiring Person (a “*Flip-in Event*”), each holder of a right, other than rights that are or, under certain circumstances, were beneficially owned by the Acquiring Person (which will thereupon become void), will, from and after the Distribution Date, have the right to receive, upon exercise of a right and payment of the purchase price, a number of shares of common stock having a market value of two times the purchase price.

For example, at an exercise price of \$1.20 per right, each right not owned by an Acquiring Person (or certain related parties) following a Flip-in Event will entitle its holder to purchase \$2.40 worth of shares of common stock for \$1.20. If the common stock at the time of exercise had a market value per share of \$0.20, the holder of each valid right would be entitled to purchase twelve shares of common stock for \$1.20.

However, rights are not exercisable following the occurrence of a person becoming an Acquiring Person until such time as the rights are no longer redeemable by us (as described below under “– Redemption”).

### ***“Flip-Over” Event***

In the event that, at any time following the Stock Acquisition Date, any of the following occurs (each, a “*Flip-over Event*”):

- We consolidate with, or merge with and into, any other entity, and we are not the continuing or surviving entity;

- Any entity engages in a share exchange with or consolidates with, or merges with or into, us, and we are the continuing or surviving entity and, in connection with such share exchange, consolidation or merger, all or part of the outstanding shares of common stock are changed into or exchanged for stock or other securities of any other entity or cash or any other property; or
- We sell or otherwise transfer, in one transaction or a series of related transactions, fifty percent (50%) or more of our assets, cash flow or earning power,

each holder of a right (except rights which previously have been voided as described above) will have the right to receive, upon exercise, common stock of the acquiring company having a value equal to two times the exercise price of the right.

### ***Preferred Share Provisions***

Each share of Series A-1 Preferred Stock, if issued: will not be redeemable, will entitle the holder thereof, when, as and if declared, to quarterly dividend payments equal to the greater of \$1.20 per share and 1,000 times the amount of all cash dividends plus 1,000 times the amount of non-cash dividends or other distributions paid on one share of common stock, will entitle the holder thereof to receive \$1,200 plus accrued and unpaid dividends per share upon liquidation, will have the same voting power as 1,000 shares of common stock and, if shares of common stock are exchanged via merger, consolidation or a similar transaction, will entitle the holder thereof to a per share payment equal to the payment made on 1,000 shares of common stock.

### ***Exempted Persons and Exempted Transactions***

Our Board of Directors recognizes that there may be instances when an acquisition of shares of common stock that would cause a stockholder to become an Acquiring Person may not jeopardize or endanger in any material respect the availability of the net operating loss carryforwards to us. Accordingly, the Section 382 Rights Agreement provides that the following “Exempted Persons” cannot become an Acquiring Person:

- We or any of our subsidiaries;
- Any officer, director or employee of ours or any of our subsidiaries solely in respect of such person’s status or authority as such;
- Any employee benefit plan of ours or any of our subsidiaries or any entity or trustee holding (or acting in a fiduciary capacity in respect of) shares of our capital stock for or pursuant to the terms of any such plan, or for the purpose of funding other employee benefits for employees of ours or any of our subsidiaries; and
- Any other person (together with all of its affiliates and associates) whose beneficial ownership of 4.9% or more of the then outstanding shares of common stock will not jeopardize or endanger the availability to us of any tax benefit, as determined by our Board of Directors in its sole discretion prior to the time any person becomes an Acquiring Person; provided, however, that our Board of Directors can revoke such person’s “Exempted Person Status” if it subsequently makes a contrary determination regarding whether the person jeopardizes or endangers the availability of any tax benefit to us.

Additionally, the Section 382 Rights Agreement provides that an “Exempted Transaction,” as determined by our Board of Directors, cannot result in a person becoming an Acquiring Person.

### ***Redemption***

At any time prior to the earlier of (1) the Stock Acquisition Date and (2) the final expiration date, we may redeem the rights in whole, but not in part, at a price of \$0.01 per right (the “Redemption Price”) (subject to adjustment). The redemption of the rights may be made effective at such time, on such basis and with such conditions as the Board of Directors in its sole discretion may establish. Immediately upon any redemption of the rights (or such later time as the Board of Directors may establish), the right to exercise the rights will terminate, and the only right of the holders of rights will be to receive the Redemption Price for each right so held.

## ***Exchange***

At any time after any person or group becomes an Acquiring Person and prior to the acquisition by the Acquiring Person of 50% or more of the outstanding shares of common stock, the Board of Directors may exchange the rights (other than rights that are void), in whole or in part, at an exchange ratio equal to (i) a number of shares of common stock per right with a value equal to the spread between the value of the number of shares of common stock for which the rights may then be exercised and the purchase price or (ii) if prior to the acquisition by the Acquiring Person of 50% or more of the then outstanding shares of common stock, one share of common stock per right (subject to adjustment). Immediately upon an exchange of any rights, the right to exercise such rights will terminate and the only right of the holders of rights will be to receive the number of shares of common stock equal to the number of such rights held by such holder multiplied by an exchange ratio.

## ***Anti-Dilution Provisions***

Our Board may adjust the purchase price of the Series A-1 Preferred Stock, the number of shares of Series A-1 Preferred Stock issuable and the number of outstanding rights to prevent dilution that may occur as a result of certain events, including among others, a share dividend, a share split or a reclassification of the Series A-1 Preferred Stock or of the common stock. With certain exceptions, no adjustments to the purchase price will be required until cumulative adjustments amount to at least 1% of the purchase price.

## ***Amendments***

Prior to the Distribution Date, our Board of Directors is permitted to supplement or amend any provision of the Section 382 Rights Agreement in any respect without the approval of the holders of the rights. From and after the Distribution Date, no amendment can materially adversely affect the interests of the holders of the rights (excluding the interests of any Acquiring Person).

## **Anti-Takeover Effects of Provisions of Our Certificate of Incorporation, By-Laws, Other Agreements and Delaware Law**

### ***Section 382 Rights Plan***

As described above, our Section 382 Rights Plan is designed to protect stockholder value by mitigating the likelihood of an “ownership change” that would substantially limit our ability to use our net operating loss carryforwards to offset future taxable income. The Section 382 Rights Plan provides, subject to certain exceptions, that if a person (together with all affiliates and associates of such person) acquires 4.9% or more of our outstanding common stock, there would be a triggering event potentially resulting in significant dilution in the voting power and economic ownership of that person or group. Existing stockholders who held 4.9% or more of our outstanding common stock as of the Rights Dividend Declaration Date (as defined above) will trigger a dilutive event only if they acquire an additional 1% of the outstanding shares of our common stock. For more information about the Section 382 Rights Plan and the Section 382 Rights Agreement, see “—Section 382 Rights Plan” above.

### ***Provisions of Our Certificate of Incorporation and By-Laws***

Some provisions of our Certificate of Incorporation and By-Laws could delay or prevent a change in control of our company.

### ***Advance Notice***

Our By-Laws provide that a stockholder must notify us in writing, within timeframes specified in the By-Laws, of any stockholder nomination of a director and of any other business that the stockholder intends to bring at a meeting of stockholders. Our By-Laws also specify requirements as to the content of a stockholder’s notice. In some instances, these provisions may preclude our stockholders from bringing proposals or making nominations for directors at our stockholder meetings.



### *Amendments to By-Laws*

Our Certificate of Incorporation and By-Laws provide that our By-Laws may be amended by our Board of Directors or by vote of the holders of the shares entitled to vote in the election of directors.

### *Changes to Board and Vacancies*

Our By-Laws provide that directors may be removed only for cause by the affirmative vote of the holders of a majority of the shares then entitled to vote at an election of directors. The By-Laws also provide that the number of directors may be increased or decreased, within established limits, by affirmative vote of a majority of the whole Board of Directors. Under our Certificate of Incorporation, any vacancy on the Board of Directors, however occurring, including a vacancy resulting from an enlargement of the Board of Directors, may only be filled by vote of a majority of the directors then in office, whether or not a quorum.

### *Authorized but Unissued Shares*

The authorized but unissued shares of our common stock are available for future issuance without stockholder approval. These additional shares may be used for a variety of corporate purposes, including public offerings to raise additional capital, corporate acquisitions and employee benefit plans. The existence of authorized but unissued and unreserved common stock could also render more difficult or discourage an attempt to obtain control of us by means of a proxy contest, tender offer, merger or otherwise.

### *“Blank Check” Preferred Stock*

Our Board of Directors is authorized, without further action by our stockholders, to issue shares of “blank check” preferred stock, in one or more series, and to fix the designations, powers, preferences and the relative, participating, optional or other special rights and any qualifications, limitations and restrictions of the shares of each series of preferred stock. The issuance of preferred stock could have the effect of delaying, deferring or preventing a change in control, as well as decrease the amount of earnings and assets available for distribution to holders of our common stock or otherwise adversely affect their rights and powers, including voting rights.

### *Series C Preferred Stock*

Under the terms of our Series C Preferred Stock, we may be required to redeem the Series C Preferred Stock in connection with a “change in control” of our Company, which is defined as the earliest to occur of (a) the date on which a majority of the members of our Board of Directors are not Continuing Directors and (b) the date on which a “person” or “group” (within the meaning of Section 13(d)(3) of the Exchange Act) beneficially owns in excess of 50% of our common stock. This may delay the assumption of control by a holder of a large block of capital stock and the removal of incumbent directors and management, even if such removal may be beneficial to some or all of our stockholders.

### *State Law Provisions*

We are governed by the provisions of Section 203 of the Delaware General Corporation Law. These provisions, which are summarized below, may have the effect of delaying, deterring or preventing a change in our control. They could also impede a transaction in which our stockholders might receive a premium over the then-current market price of our common stock and our stockholders' ability to approve transactions that they consider to be in their best interests.

In general, Section 203 of the Delaware General Corporation Law, subject to specific exceptions, prohibits a Delaware corporation with a class of voting stock listed on a national securities exchange or held of record by 2,000 or more stockholders from engaging in a business combination with an interested stockholder (generally, the beneficial owner of 15% or more of the corporation's outstanding voting stock) for three years following the time the stockholder became an interested stockholder, unless: (1) prior to such time the corporation's board of directors approved either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder, (2) upon consummation of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the number of shares outstanding those shares owned by directors, officers and specific employee stock plans, or (3) on or after that date, the business combination is approved by our Board of Directors and authorized at an annual or special meeting of stockholders, and not by written consent, by the affirmative vote of the holders of at least 66 2/3% of the outstanding voting stock that is not owned by the interested stockholder. A "business combination" includes, among other things, a merger, asset sale, or other transaction resulting in a financial benefit, other than proportionately as a stockholder, to the interested stockholder.

The provisions of Section 203 may encourage companies interested in acquiring us to negotiate in advance with our Board of Directors since the stockholder approval requirement would be avoided if our Board of Directors approves either the business combination or the transaction that results in the stockholder becoming an interested stockholder. These provisions also may have the effect of preventing changes in our management or may make it more difficult to accomplish transactions that stockholders may otherwise deem to be in their best interests. We believe that the benefits of increased protection of our ability to negotiate with an unsolicited acquirer outweigh the disadvantages of discouraging such proposals because, among other reasons, the negotiation of such proposals could result in an improvement of their terms.

## SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

The following table sets forth certain information as of the close of business on November 9, 2020 concerning stock ownership of (i) each person known by us to own beneficially more than 5% of our outstanding common stock, (ii) each director as of such date, (iii) each of our named executive officers, and (iv) all of our directors and executive officers as a group. Information set forth in this table as to our directors, named executive officers and all directors and executive officers as a group is based upon information supplied by these individuals. Information in this table as to our greater than 5% stockholders is based solely upon the Schedules 13D or 13G filed by these stockholders with the Commission. Where information is based on a Schedule 13D or 13G, the number of shares owned is as of the date for which information was provided in such schedules.

Name and Address of Beneficial Owner or Identity of Group <sup>(1)</sup>	Amount and Nature of Beneficial Ownership <sup>(2)</sup>	Percentage of Common Stock Outstanding <sup>(3)</sup>
Jordan Bleznick	—	—
Jennifer McNealey	—	—
Andrew Rackear	25,000 <sup>(4)</sup>	*
Richard L. Feinstein	—	—
Randolph C. Read	—	—
Carl C. Icahn and affiliated entities	36,056,636 <sup>(5)</sup>	48.6%
Jonathan Couchman and affiliated entities	7,851,454 <sup>(6)</sup>	10.6%
All Directors and Executive Officers as a group (5 persons)	25,000 <sup>(4)</sup>	*

\* Less than one percent

(1) The address for each of the executive officers and directors listed in this table is c/o Enzon Pharmaceuticals, Inc., 20 Commerce Drive, Suite 135, Cranford, New Jersey, 07016.

(2) Beneficial ownership is determined in accordance with the rules of the Commission that deem shares to be beneficially owned by any person who has or shares voting or investment power with respect to such shares. With respect to each person set forth in the table, shares subject to stock options, if any, held by such person that were exercisable as of November 9, 2020 or will become exercisable within 60 days after November 9, 2020 and restricted stock units, if any, held by such person that vest within 60 days of November 9, 2020 are deemed to be outstanding and to be beneficially owned by such person for the purpose of computing the percentage ownership of such person, but are not treated as outstanding for the purpose of computing the percentage ownership of any other person. Unless otherwise indicated below, the persons and entities named in the table have sole voting and sole investment power with respect to all the shares beneficially owned, subject to community property laws where applicable.

(3) Based on 74,214,603 shares of common stock, which were issued and outstanding as of the close of business on November 9, 2020. The percentage of common stock outstanding for each person set forth in the table is calculated by dividing (i) the number of shares of common stock deemed to be beneficially held by such person as of November 9, 2020 by (ii) the sum of (A) the number of shares of common stock outstanding as of November 9, 2020, plus (B) the number of shares of common stock subject to stock options, if any, held by such person that were exercisable as of November 9, 2020 or will become exercisable within 60 days after November 9, 2020, plus (C) restricted stock units, if any, held by such person that vest within 60 days of November 9, 2020.

(4) Represents 25,000 shares subject to options, which were exercisable as of November 9, 2020.

(5) Information concerning stock ownership was obtained from Amendment No. 13 to the Schedule 13D filed with the Commission on October 14, 2020 by Carl C. Icahn and various entities affiliated with him. The address for Carl C. Icahn and entities affiliated with him is 16690 Collins Avenue, Suite PH-1, Sunny Isles Beach, FL 33160. Mr. Icahn was reported to share voting and dispositive power over all 36,056,636 shares with entities affiliated with him. For additional information, see the footnotes to the table above under "Selling Stockholders."

(6) Information concerning stock ownership was obtained from Amendment No. 2 to the Schedule 13D filed with the Commission on September 17, 2020 by Jonathan Couchman ("Mr. Couchman"), Couchman Family Fund (the "Foundation"), Xstelos Corp. ("Xstelos") and Myrexix, Inc. ("Myrexix"). The principal business address for Mr. Couchman, the Foundation and Myrexix is Couchman Management LLC, 600 Fifth Avenue, 2nd Floor, New York, NY 10020. The principal business address for Xstelos is 1105 North Market Street, Suite 1300, Wilmington, DE 19801.

## LEGAL MATTERS

Unless otherwise indicated in the applicable prospectus supplement, the validity of the securities offered by this prospectus, and any supplement thereto, has been passed upon for us by Thompson Hine LLP, 335 Madison Avenue, 12th Floor, New York, New York 10017.

## EXPERTS

The consolidated balance sheets of Enzon Pharmaceuticals, Inc. and Subsidiaries as of December 31, 2019 and 2018 and the related consolidated statements of operations, stockholders' equity, and cash flows for each of the years then ended have been audited by EisnerAmper LLP, an independent registered public accounting firm, as stated in their report which is incorporated herein. Such financial statements have been incorporated herein in reliance on the report of such firm given upon their authority as experts in accounting and auditing.

## WHERE YOU CAN FIND MORE INFORMATION

We have filed with the Commission a registration statement on Form S-1, including exhibits, schedules and amendments filed with the registration statement, under the Securities Act with respect to this offering of securities. This prospectus, which constitutes part of the registration statement, omits certain information, exhibits, schedules and undertakings set forth in the registration statement. You should refer to the registration statement and its exhibits and schedules for additional information. Whenever we make reference in this prospectus to any of our contracts, agreements or other documents, the references are not necessarily complete and you should refer to the exhibits filed with the registration statement for copies of the actual contract, agreement or other document. Statements contained in this prospectus as to the contents of any contract or other document referred to in this prospectus are not necessarily complete and, where that contract is an exhibit to the registration statement, each statement is qualified in all respects by reference to the exhibit to which the reference relates.

The Commission maintains an internet website at <http://www.sec.gov> that contains reports, proxy and information statements and other information regarding issuers that file electronically with the Commission. The periodic reports, proxy statements and other information we file with the Commission are available for inspection on the Commission's website free of charge as soon as reasonably practicable after they are electronically filed with, or furnished to, the Commission. We also maintain a website at <http://www.enzon.com> where you may access these materials free of charge. We have included our website address as an inactive textual reference only and the information contained in, and that can be accessed through, our website is not incorporated into and is not part of this prospectus.

## INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The Commission allows us to incorporate by reference the information we file with it. This means that we can disclose information to you by referring you to those documents. The documents that have been incorporated by reference are an important part of the prospectus, and you should review that information in order to understand the nature of any investment by you in our common stock and Preferred Stock. We are incorporating by reference the documents listed below:

- Our Annual Report on Form 10-K for the fiscal year ended December 31, 2019, filed on [February 19, 2020](#), as amended by Form 10-K/A, filed on [April 24, 2020](#);
- Our Quarterly Reports on Forms 10-Q for the fiscal quarter ended March 31, 2020, filed on [April 30, 2020](#), the fiscal quarter ended June 30, 2020, filed on [July 29, 2020](#), and the fiscal quarter ended September 30, 2020, filed on [November 9, 2020](#);
- The description of our shares of common stock contained in Exhibit 4.1 to our Annual Report on Form 10-K for the fiscal year ended [December 31, 2019](#) and the description of the rights associated therewith contained in our [Form 8-A, filed on August 14, 2020](#);

- Our Current Reports on Forms 8-K, filed on [August 7, 2020](#), [August 14, 2020](#), [August 31, 2020](#), [September 1, 2020](#), [September 2, 2020](#), [September 15, 2020](#), [September 23, 2020](#) and [October 14, 2020](#); and
- [Our Definitive Proxy Statement on Schedule 14A, filed on November 3, 2020.](#)

All documents subsequently filed by us pursuant to Sections 13(a), 13(c), 14 and 15(d) of the Exchange Act prior to the effective date of the registration statement of which this prospectus forms a part, including those made after the date of the initial filing of the registration statement of which this prospectus forms a part and prior to effectiveness of such registration statement, until we file a post-effective amendment that indicates the termination of the offering of the securities made by this prospectus, shall be deemed to be incorporated herein by reference and are a part hereof from the date of filing of such documents, except for the documents, or portions thereof, that are "furnished" (e.g., the portions of those documents set forth under Items 2.02 or 7.01 of Form 8-K or other information "furnished" to the Commission) rather than filed with the Commission. Any statement contained herein or in a document incorporated or deemed to be incorporated herein by reference shall be deemed to be modified or superseded for purposes of this prospectus to the extent that a statement contained herein or in any other subsequently filed document which also is or is deemed to be incorporated herein by reference modifies or supersedes such statement.

The documents incorporated by reference into this prospectus are also available on our corporate website at <https://www.enzon.com> under the heading "Investors and Media." Upon request, we will provide to each person, including any beneficial owner, to whom this prospectus is delivered, a copy of any or all of the reports or documents that have been incorporated by reference into this prospectus. If you would like a copy of any of these documents, at no cost, please call us at (732) 980-4500 or through an e-mail request to [investor@enzon.com](mailto:investor@enzon.com).

#### **DISCLOSURE OF COMMISSION POSITION ON INDEMNIFICATION FOR SECURITIES ACT LIABILITIES**

Our directors and officers are indemnified to the fullest extent permitted under Delaware law. We also maintain insurance which protects our officers and directors against any liabilities incurred in connection with their service in such a capacity.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to our directors, officers and controlling persons pursuant to the foregoing, or otherwise, we have been advised that in the opinion of the Commission such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by us of expenses incurred or paid by a director, officer or controlling person of ours in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, we will, unless in the opinion of our counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.



36,056,636

Shares of Common Stock

PROSPECTUS

, 2020

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## PART II

### INFORMATION NOT REQUIRED IN PROSPECTUS

#### Item 13. Other Expenses of Issuance and Distribution.

The following table sets forth all costs and expenses, other than underwriting discounts and commissions, paid or payable by Enzon Pharmaceuticals, Inc. (the “Registrant,” “we,” “us,” or “our”) in connection with the sale of the securities being registered under this registration statement. All amounts shown are estimates except for the U.S. Securities and Exchange Commission (the “Commission”) registration fee and the FINRA filing fee.

<b>Expense</b>	<b>Amount</b>
SEC Registration Fee	\$ 591
Accounting Fees and Expenses	\$ 20,000
Legal Fees and Expenses	\$ 35,000
Miscellaneous Fees and Expenses	\$ 2,000
Total	\$ 57,591

#### Item 14. Indemnification of Directors and Officers.

The Registrant is incorporated under the laws of the State of Delaware. Section 145 of the Delaware General Corporation Law, or DGCL, provides that a corporation may indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding whether civil, criminal, administrative or investigative (other than an action by or in the right of the corporation) by reason of the fact that he or she is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, against expenses (including attorneys’ fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by him or her in connection with such action, suit or proceeding if he or she acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the best interests of the corporation, and, with respect to any criminal action or proceeding, had no reasonable cause to believe his or her conduct was unlawful.

Section 145 further provides that a corporation similarly may indemnify any such person serving in any such capacity who was or is a party or is threatened to be made a party to any threatened, pending or completed action or suit by or in the right of the corporation to procure a judgment in its favor by reason of the fact that he or she is or was a director, officer, employee or agent of the corporation or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, against expenses (including attorneys’ fees) actually and reasonably incurred in connection with the defense or settlement of such action or suit if he or she acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the best interests of the corporation, except that no indemnification shall be made in respect of any claim, issue or matter as to which such person shall have been adjudged to be liable to the corporation unless and only to the extent that the Delaware Court of Chancery or such other court in which such action or suit was brought shall determine upon application that, despite the adjudication of liability but in view of all of the circumstances of the case, such person is fairly and reasonably entitled to indemnity for such expenses which the Delaware Court of Chancery or such other court shall deem proper.

Any such indemnified person’s rights to indemnification may not be eliminated after the occurrence of the act or omission giving rise to a claim in respect of which indemnification is sought, unless the relevant indemnification provision expressly permits such elimination.

Pursuant to the DGCL, if a present or former director or officer of a corporation has been successful on the merits or otherwise in defense of any action, suit or proceeding, the corporation must indemnify such person against expenses (including attorneys’ fees) actually and reasonably incurred by such person in connection therewith.

Section 102(b)(7) of the DGCL enables a corporation in its certificate of incorporation to eliminate or limit the personal liability of members of its board of directors for violation of a director’s fiduciary duty of care. Article 10 of the Registrant’s certificate of incorporation, as authorized by Section 102(b)(7), provides that a director shall not be liable to the Registrant for breach of a fiduciary duty, except for liability:

- for any breach of the director's duty of loyalty to the Registrant or the Registrant's stockholders;
- for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law;
- under section 174 of the DGCL providing for liability of directors for unlawful payment of dividends or unlawful stock purchases or redemptions; or
- for any transaction from which a director derived an improper benefit.

Any repeal or modification of Article 10 by the Registrant's stockholders shall be prospective only, and shall not adversely affect any limitation on the personal liability of a director of the Registrant existing at the time of such repeal or modification.

The DGCL provides that the rights to indemnification and to the advancement of expenses described above shall not be deemed exclusive of any other rights to which those seeking indemnification or advancement of expenses may be entitled under any bylaw, agreement, vote of stockholders or disinterested directors or otherwise.

The Registrant is authorized under Delaware law to purchase and maintain insurance on behalf of any person who is or was a director, officer, employee or agent of the Registrant, or is or was serving at the request of the Registrant in a similar capacity for another corporation, partnership, joint venture, trust or other enterprise, against any liability asserted against him or her in any such capacity, or arising out of his or her status as such, whether or not the Registrant would have the power to indemnify him or her against such liability

Section 8.1 of the Registrant's bylaws provides for the indemnification, to the fullest extent authorized by law, of any person made, or threatened to be made, a party to any threatened, pending or completed action, suit or proceeding, whether criminal, civil, administrative or investigative, against expenses (including reasonable attorneys' fees), judgments, fines, and amounts paid in settlement actually and reasonably incurred in connection with such action, suit or proceeding, by reason of the fact that such person is or was a director or officer of the Registrant. Section 8.2 of the Registrant's bylaws further provides for similar indemnification of any person who is or was an employee or agent of the Registrant or is or was serving at the request of the Registrant as a director, officer, employee or agent of another entity.

The Registrant's Directors' and Officers' Liability Insurance, which is provided for under Section 8.3 of the Registrant's bylaws, insures directors and officers against any liability arising out of such person's status as a director or officer, and insures the Registrant against its obligations to indemnify its directors and officers. The Registrant also maintains indemnification agreements with certain of its directors and officers to indemnify them against liabilities which may arise by reason of their status or service as a director or officer.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers or persons controlling us pursuant to the foregoing provisions, we have been informed that in the opinion of the Commission such indemnification is against public policy as expressed in the Securities Act and is therefore unenforceable.

**Item 15. Recent Sales of Unregistered Securities.**

We previously announced that we commenced a rights offering on September 23, 2020 (the "*Rights Offering*"), pursuant to which holders of our common stock received one transferable subscription right for each share of common stock owned. For every 1,105 subscription rights held, stockholders were entitled to purchase one unit at the subscription price of \$1,090 per unit, representing expected gross proceeds of \$43.6 million from the sale of all 40,000 units. Each unit consisted of one share of newly designated Series C preferred stock and 750 shares of common stock, all as described in the registration statement on Form S-1 (as amended) and related prospectus, filed by us with the Commission. The Rights Offering expired October 9, 2020.



We also previously disclosed that we entered into an investment agreement with Icahn Capital LP, which, together with its affiliates, beneficially owned approximately 15% of Enzon's common stock before giving effect to the previously disclosed Rights Offering. Pursuant to the Rights Offering, Icahn Capital LP, together with its affiliates, subscribed for 5,971 units (its pro-rata share of the Rights Offering) representing the purchase of 4,478,250 shares of common stock and 5,971 shares of Series C preferred stock. In addition, Icahn Capital LP also agreed to purchase all units that remained unsubscribed for at the expiration of the Rights Offering to the extent that other holders elected not to exercise all of their respective subscription rights (the "Investment Units"), which totaled 33,306 Investment Units representing the purchase of 24,979,500 shares of common stock and 33,306 shares of Series C preferred stock.

The offer and sale of Investment Units, including the underlying shares of common stock and Series C preferred stock, to Icahn Capital LP pursuant to the Investment Agreement were effectuated in reliance upon an exemption from the registration requirements of the Securities Act of 1933, as amended, pursuant to Section 4(a)(2) thereof.

**Item 16. Exhibits and financial statement schedules.**

- (a) The exhibits to the registration statement are set forth within the Exhibit Index below.
- (b) No financial statement schedules are provided because the information called for is not required or is shown either in the financial statements or notes.

**Exhibit Index**

<b>Exhibit Number</b>	<b>Description</b>
<a href="#"><u>2.1</u></a>	<a href="#"><u>Asset Purchase Agreement, dated as of November 9, 2009, by and between Klee Pharmaceuticals, Inc., Defiante Farmacêutica, S.A. and Sigma-Tau Finanziaria S.p.A., on the one hand, and the Registrant, on the other hand (filed as Exhibit 2.1 to the Registrant's Current Report on Form 8-K filed with the Commission on November 12, 2009 and incorporated herein by reference).</u></a>
<a href="#"><u>2.2</u></a>	<a href="#"><u>Plan of Liquidation and Dissolution of the Registrant (adopted by the Board of Directors of the Registrant on February 4, 2016) (filed as Exhibit 2.1 to the Registrant's Current Report on Form 8-K filed with the Commission on February 9, 2016 and incorporated herein by reference).</u></a>
<a href="#"><u>3.1</u></a>	<a href="#"><u>Amended and Restated Certificate of Incorporation dated May 18, 2006, together with the Certificate of Amendment to the Amended and Restated Certificate of Incorporation dated July 13, 2010 (filed as Exhibit 3.1 to the Registrant's Quarterly Report on Form 10-Q filed with the Commission on August 9, 2010 and incorporated herein by reference).</u></a>
<a href="#"><u>3.2</u></a>	<a href="#"><u>Certificate of Designation of Series A Junior Participating Preferred Stock of the Registrant, filed with the Secretary of State of the State of Delaware on May 1, 2014 (filed as Exhibit 3.1 to the Registrant's Current Report on Form 8-K filed with the Commission on May 1, 2014 and incorporated herein by reference).</u></a>
<a href="#"><u>3.3</u></a>	<a href="#"><u>Certificate of Elimination of Series A Junior Participating Preferred Stock of the Registrant, filed with the Secretary of State of the State of Delaware on August 14, 2020 (filed as Exhibit 3.1 to the Registrant's Current Report on Form 8-K filed with the Commission on August 14, 2020 and incorporated herein by reference).</u></a>
<a href="#"><u>3.4</u></a>	<a href="#"><u>Certificate of Designation of Series A-1 Junior Participating Preferred Stock of the Registrant, filed with the Secretary of State of the State of Delaware on August 14, 2020 (filed as Exhibit 3.2 to the Registrant's Current Report on Form 8-K filed with the Commission on August 14, 2020 and incorporated herein by reference).</u></a>
<a href="#"><u>3.5</u></a>	<a href="#"><u>Form of Certificate of Designation of Series C Non-Convertible Redeemable Preferred Stock of the Registrant (filed as Exhibit 3.5 to the Registrant's Registration Statement on Form S-1 filed with the Commission on September 15, 2020 and incorporated herein by reference).</u></a>

- [3.6](#) [Second Amended and Restated By-Laws of the Registrant effective March 11, 2011, as amended by Amendment No. 1 to the Second Amended and Restated By-Laws effective February 15, 2013 \(filed as Exhibit 3.2 to the Registrant's Annual Report on Form 10-K filed with the Commission on March 18, 2013 and incorporated herein by reference\).](#)
- [3.7](#) [Certificate of Designation of Series A-1 Junior Participating Preferred Stock of the Registrant, filed with the Secretary of State of the State of Delaware on August 14, 2020 \(filed as Exhibit 3.2 to the Registrant's Current Report on Form 8-K filed with the Commission on August 14, 2020 and incorporated herein by reference\).](#)
- [3.8](#) [Certificate of Designation of Series C Non-Convertible Redeemable Preferred Stock of the Registrant, filed with the Secretary of State of the State of Delaware on September 21, 2020 \(filed as Exhibit 3.1 to the Registrant's Current Report on Form 8-K filed with the Commission on September 23, 2020 and incorporated herein by reference\).](#)
- [4.1](#) [Section 382 Rights Agreement, dated as of August 14, 2020, by and between the Registrant and Continental Stock Transfer & Trust Company, which includes the Form of Certificate of Designation as Exhibit A, Form of Rights Certificate as Exhibit B and the Form of Summary of Rights as Exhibit C \(filed as Exhibit 4.1 to the Registrant's Current Report on Form 8-K filed with the Commission on August 14, 2020 and incorporated herein by reference\).](#)
- [5.1+](#) [Legal opinion of Thompson Hine LLP.](#)
- [10.1†](#) [2001 Incentive Stock Plan, as amended and restated, of the Registrant \(filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the Commission on May 19, 2006 and incorporated herein by reference\).](#)
- [10.2\\*](#) [Development, License and Supply Agreement between the Registrant and Schering Corporation, dated November 14, 1990, as amended \(filed as Exhibit 10.15 to the Registrant's Annual Report on Form 10-K filed with the Commission on September 26, 2002 and incorporated herein by reference\).](#)
- [10.3†](#) [Amended and Restated 2013 Outside Director Compensation Plan \(filed as Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q filed with the Commission on August 6, 2013 and incorporated herein by reference\).](#)
- [10.4†](#) [Form of Non-Qualified Stock Option Agreement for Executive Officers under the 2001 Incentive Stock Plan \(filed as Exhibit 10.3 to the Registrant's Quarterly Report on Form 10-Q filed with the Commission on February 9, 2005 and incorporated herein by reference\).](#)
- [10.5†](#) [Form of Restricted Stock Award Agreement for Executive Officers under the 2001 Incentive Stock Plan \(filed as Exhibit 10.4 to the Registrant's Quarterly Report on Form 10-Q filed with the Commission on February 9, 2005 and incorporated herein by reference\).](#)
- [10.6†](#) [Form of Restricted Stock Unit Award Agreement for Executive Officers under the 2001 Incentive Stock Plan \(filed as Exhibit 10.6 to the Registrant's Quarterly Report on Form 10-Q filed with the Commission on May 10, 2005 and incorporated herein by reference\).](#)
- [10.7†](#) [Form of Restricted Stock Unit Award Agreement for Independent Directors under the 2001 Incentive Stock Plan \(filed as Exhibit 10.6 to the Registrant's Quarterly Report on Form 10-Q filed with the Commission on May 10, 2005 and incorporated herein by reference\).](#)
- [10.8†](#) [Form of Stock Option Award Agreement for Independent Directors under the 1987 Non-Qualified Stock Option Plan \(filed as Exhibit 10.3 to the Registrant's Quarterly Report on Form 10-Q filed with the Commission on November 9, 2005 and incorporated herein by reference\).](#)
- [10.9†](#) [Form of Stock Option Award Agreement for Independent Directors under the 2001 Incentive Stock Plan \(filed as Exhibit 10.4 to the Registrant's Quarterly Report on Form 10-Q filed with the Commission on November 9, 2005 and incorporated herein by reference\).](#)
- [10.10†](#) [Amendment to Outstanding Awards Under 2001 Incentive Stock Plan \(filed as Exhibit 10.35 to the Registrant's Annual Report on Form 10-K filed with the Commission on March 9, 2009 and incorporated herein by reference\).](#)
- [10.11†](#) [2001 Incentive Stock Plan Non-Qualified Stock Plan Terms and Conditions \(filed as Exhibit 10.36 to the Registrant's Annual Report on Form 10-K filed with the Commission on March 9, 2009 and incorporated herein by reference\).](#)
- [10.12†](#) [2001 Incentive Stock Plan Restricted Stock Unit Award Terms and Conditions \(filed as Exhibit 10.37 to the Registrant's Annual Report on Form 10-K filed with the Commission on March 9, 2009 and incorporated herein by reference\).](#)
- [10.13†](#) [2001 Incentive Stock Plan Restricted Stock Award Terms and Conditions \(filed as Exhibit 10.38 to the Registrant's Annual Report on Form 10-K filed with the Commission on March 9, 2009 and incorporated herein by reference\).](#)

- [10.14†](#) [2011 Stock Option and Incentive Plan \(filed as Exhibit 99.1 to the Registrant’s Registration Statement on Form S-8 \(File No. 333-174099\) filed with the Commission on May 10, 2011 and incorporated herein by reference\).](#)
- [10.15†](#) [Form of Non-Qualified Stock Option Agreement for Company Employees under the 2011 Stock Option and Incentive Plan \(filed as Exhibit 99.2 to the Registrant’s Registration Statement on Form S-8 \(File No. 333-174099\) filed with the Commission on May 10, 2011 and incorporated herein by reference\).](#)
- [10.16†](#) [Form of Non-Qualified Stock Option Agreement for Non-Employee Directors under the 2011 Stock Option and Incentive Plan \(filed as Exhibit 99.3 to the Registrant’s Registration Statement on Form S-8 \(File No. 333-174099\) filed with the Commission on May 10, 2011 and incorporated herein by reference\).](#)
- [10.17†](#) [Form of Restricted Stock Unit Award Agreement for Company Employees under the 2011 Stock Option and Incentive Plan \(filed as Exhibit 99.4 to the Registrant’s Registration Statement on Form S-8 \(File No. 333-174099\) filed with the Commission on May 10, 2011 and incorporated herein by reference\).](#)
- [10.18†](#) [Form of Restricted Stock Unit Award Agreement for Non-Employee Directors under the 2011 Stock Option and Incentive Plan \(filed as Exhibit 99.5 to the Registrant’s Registration Statement on Form S-8 \(File No. 333-174099\) filed with the Commission on May 10, 2011 and incorporated herein by reference\).](#)
- [10.19](#) [2007 Employee Stock Purchase Plan \(filed as Exhibit 10.1 to the Registrant’s Registration Statement on Form S-8 \(File No. 333-140282\) filed with the Commission on January 29, 2007 and incorporated herein by reference\).](#)
- [10.20†](#) [Independent Contractor Agreement, dated as of December 13, 2013, between the Registrant and Richard L. Feinstein \(filed as Exhibit 10.30 to the Registrant’s Annual Report on Form 10-K filed with the Commission on March 14, 2014 and incorporated herein by reference\).](#)
- [10.21](#) [Assignment, Assumption and Release Agreement, dated as of September 11, 2015, between Kingsbridge 2005, LLC and the Registrant \(filed as Exhibit 10.1 to the Registrant’s Quarterly Report on Form 10-Q filed with the Commission on November 6, 2015 and incorporated herein by reference\).](#)
- [10.22†](#) [Amendment 1 to Independent Contractor Agreement, effective as of December 28, 2015, between the Registrant and Richard L. Feinstein \(filed as Exhibit 10.27 to the Registrant’s Annual Report on Form 10-K filed with the Commission on March 21, 2016 and incorporated herein by reference\).](#)
- [10.23](#) [Agreement, dated as of December 29, 2015, among Kingsbridge 2005, LLC, the Registrant and Axcellerate Pharma, LLC \(executed by the Registrant on February 4, 2016\) \(filed as Exhibit 10.28 to the Registrant’s Annual Report on Form 10-K filed with the Commission on March 21, 2016 and incorporated herein by reference\).](#)
- [10.24](#) [Letter Agreement, dated February 4, 2016, between Kingsbridge 2005, LLC and the Registrant \(filed as Exhibit 10.29 to the Registrant’s Annual Report on Form 10-K filed with the Commission on March 21, 2016 and incorporated herein by reference\).](#)
- [10.25†](#) [Separation Agreement, dated as of September 27, 2013, between the Registrant and Andrew Rackear \(filed as Exhibit 10.2 to the Registrant’s Quarterly Report on Form 10-Q filed with the Commission on November 12, 2013 and incorporated herein by reference\).](#)
- [10.26†](#) [Amendment to Separation Agreement, dated as of January 1, 2016, between the Registrant and Andrew Rackear \(filed as Exhibit 10.2 to the Registrant’s Quarterly Report on Form 10-Q filed with the Commission on May 9, 2016 and incorporated herein by reference\).](#)
- [10.27†](#) [Amendment 2 to Separation Agreement, dated as of March 31, 2016, between the Registrant and Andrew Rackear \(filed as Exhibit 10.3 to the Registrant’s Quarterly Report on Form 10-Q filed with the Commission on May 9, 2016 and incorporated herein by reference\).](#)
- [10.28](#) [Amended and Restated Exclusive IP Marketing Agreement, dated as of June 28, 2004, by and between Microment AG and the Registrant \(filed as Exhibit 10.28 to the Registrant’s Annual Report on Form 10-K filed with the Commission on February 21, 2019 and incorporated herein by reference\).](#)
- [10.29](#) [Letter Agreement, dated January 30, 2019, between Servier IP UK Limited and the Registrant \(filed as Exhibit 10.29 to the Registrant’s Annual Report on Form 10-K filed with the Commission on February 21, 2019 and incorporated herein by reference\).](#)

- [10.30](#) [Investment Agreement, dated as of September 1, 2020, by and between the Registrant and Icahn Capital LP \(filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the Commission on September 1, 2020 and incorporated herein by reference\).](#)
- [21.1](#) [Subsidiaries of the Registrant \(filed as Exhibit 21.1 to the Registrant's Annual Report on Form 10-K filed with the Commission on February 19, 2020 and incorporated herein by reference\).](#)
- [23.1+](#) [Consent of Thompson Hine LLP \(included in Exhibit 5.1\).](#)
- [23.2+](#) [Consent of EisnerAmper LLP.](#)
- [24.1+](#) [Power of Attorney \(included on signature page\).](#)

+ Filed herewith.

\* Portions of this exhibit have been redacted and filed separately with the Commission pursuant to a confidential treatment request.

† Indicates a management contract or compensatory plan or arrangement

#### **Item 17. Undertakings.**

(a) The undersigned registrant hereby undertakes:

- (1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:
  - (i) To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933, as amended (the "*Securities Act*");
  - (ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20% change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement; and
  - (iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement.

provided, however, that paragraphs (i), (ii) and (iii) above do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in periodic reports filed with or furnished to the Commission by the registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934, as amended (the "*Exchange Act*") that are incorporated by reference in the registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is a part of the registration statement;

- (2) That, for the purpose of determining any liability under the Securities Act, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

- (3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.
- (4) That, for the purpose of determining liability under the Securities Act to any purchaser:
- (i) Each prospectus filed by the registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and
  - (ii) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii), or (x) for the purpose of providing the information required by Section 10(a) of the Securities Act shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof. Provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such effective date.
- (b) The undersigned registrant hereby further undertakes that for purposes of determining any liability under the Securities Act, each filing of the registrant's annual report pursuant to Section 13(a) or Section 15(d) of the Exchange Act (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Exchange Act) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.
- (c) Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions or otherwise, the registrant has been advised that in the opinion of the Commission such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

## SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Cranford, State of New Jersey, on November 12, 2020.

ENZON PHARMACEUTICALS, INC.

By: /s/ Andrew Rackear

Name: Andrew Rackear

Title: Chief Executive Officer and Secretary (Principal Executive Officer)

We, the undersigned directors and officers of ENZON PHARMACEUTICALS, INC., a Delaware corporation (the “Company”), do hereby constitute and appoint Andrew D. Rackear and Richard L. Feinstein, and each and either of them, our true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution, to do any and all acts and things in our names and on our behalf in our capacities as directors and/or officers and to execute any and all instruments for us and in our name in the capacities indicated below, which said attorneys and agents may deem necessary or advisable to enable the Company to comply with the Securities Act of 1933, as amended, and any rules, regulations and requirements of the U.S. Securities and Exchange Commission, in connection with this registration statement, including without limitation any and all amendments (including post-effective amendments) and supplements hereto; and we hereby ratify and confirm all that said attorneys and agents, or either of them, shall do or cause to be done by virtue thereof.

Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed by the following persons in the capacities and on the dates indicated below.

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Andrew D. Rackear</u> Andrew D. Rackear	Chief Executive Officer and Secretary <i>(Principal Executive Officer)</i>	November 12, 2020
<u>/s/ Richard L. Feinstein</u> Richard L. Feinstein	Vice President – Finance and Chief Financial Officer <i>(Principal Financial Officer and Principal Accounting Officer)</i>	November 12, 2020
<u>/s/ Randolph C. Read</u> Randolph C. Read	Chairman of the Board	November 12, 2020
<u>/s/ Jennifer McNealey</u> Jennifer McNealey	Director	November 12, 2020
<u>/s/ Jordan Bleznick</u> Jordan Bleznick	Director	November 12, 2020

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ATLANTA

CINCINNATI

COLUMBUS

NEW YORK

CHICAGO

CLEVELAND

DAYTON

WASHINGTON, D.C.

November 12, 2020

Enzon Pharmaceuticals, Inc.  
20 Commerce Drive (Suite 135)  
Cranford, New Jersey 07016

**Re: Registration Statement on Form S-1**

Ladies and Gentlemen:

We have acted as counsel to Enzon Pharmaceuticals, Inc., a Delaware corporation (the “**Company**”), in connection with the preparation and filing of the Registration Statement on Form S-1, being filed on the date hereof with the U.S. Securities and Exchange Commission (the “**Commission**”) under the Securities Act of 1933, as amended (the “**Securities Act**”), (as so filed and as amended, the “**Registration Statement**”) and the related prospectus contained in the Registration Statement (the “**Prospectus**”) relating to the registration of the offering by the selling stockholders named in the Registration Statement under the caption “Selling Stockholders” (the “**Selling Stockholders**”) of up to an aggregate of 36,056,636 shares of the Company’s common stock, \$0.01 par value per share (the “**Shares**”).

In rendering this opinion, we have examined the Registration Statement, the Prospectus, the Investment Agreement, dated as of September 1, 2020, between the Company and Icahn Capital LP, and such other documents, and reviewed such questions of law, as we have deemed advisable in order to render our opinion set forth below. In such examination, we have assumed the genuineness of all signatures, the legal capacity of all natural persons, that all parties (other than the Company) had the requisite power and authority (corporate or otherwise) to execute, deliver and perform such agreements or instruments, that all such agreements or instruments have been duly authorized by all requisite action (corporate or otherwise), executed and delivered by such parties, that such agreements or instruments are valid, binding and enforceable obligations of such parties, the authenticity of all documents submitted to us as originals, the conformity to original documents of all documents submitted to us as certified, conformed or photostatic copies and the authenticity of the originals of such latter documents. In providing this opinion, we have further relied as to certain matters on information obtained from public officials and officers of the Company.

As a result of and subject to the foregoing, we are of the opinion that the Shares have been duly authorized by the Company and are validly issued, fully paid and non-assessable.

Our opinions expressed above are limited to the General Corporation Laws of the State of Delaware and laws of the State of New York, in each case as currently in effect, and we express no opinion as to the effect on the matters covered by this letter of the laws of any other jurisdiction.

This opinion letter is expressly limited to the matters set forth above, and we render no opinion, whether by implication or otherwise, as to any other matters relating to the Company, the Shares, the Registration Statement or the Prospectus.

We hereby consent to the filing of this opinion as an exhibit to the Registration Statement, and to being named under the caption “Legal Matters” contained in the Prospectus. In giving this consent, we do not hereby admit that we are within the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations of the Commission promulgated thereunder.

Very truly yours,

/s/ Thompson Hine LLP

Thompson Hine LLP

THOMPSON HINE LLP  
ATTORNEYS AT LAW

335 Madison Avenue  
12th Floor  
New York, New York 10017-4611

www.ThompsonHine.com  
Phone: 212.344.5680  
Fax: 212.344.6101

**CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM**

We consent to the incorporation by reference in this Registration Statement of Enzon Pharmaceuticals, Inc. on Form S-1 to be filed on or about November 12, 2020 of our report dated February 19, 2020, on our audits of the consolidated financial statements as of December 31, 2019 and 2018 and for each of the years then ended, which report was included in the Annual Report on Form 10-K filed February 19, 2020. We also consent to the reference to our firm under the caption "Experts" in this Registration Statement.

/s/ EisnerAmper LLP

EISNERAMPER LLP  
Philadelphia, Pennsylvania  
November 12, 2020

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