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**SECURITIES AND EXCHANGE COMMISSION**  
WASHINGTON, DC 20549

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**SCHEDULE 13D**  
(Rule 13d-101)

**INFORMATION TO BE INCLUDED IN STATEMENTS FILED PURSUANT  
TO RULE 13d-1(a) AND AMENDMENTS THERETO FILED PURSUANT  
TO RULE 13d-2(a)  
(Amendment No. 13)\***

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**Idera Pharmaceuticals, Inc.**

(Name of Issuer)

**Common Stock, \$0.001 par value per share**  
(Title of Class of Securities)

**45168K306**  
(CUSIP number)

**Youssef El Zein**  
**c/o Stuarts Corporate Services Ltd.**  
**Kensington House, 69 Dr. Roy's Drive**  
**Georgetown, Grand Cayman KY1-1104**  
**Cayman Islands**

(Name, Address and Telephone Number of Person Authorized to Receive Notices and Communications)

**September 27, 2022**  
(Date of Event Which Requires Filing of this Statement)

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If the filing person has previously filed a statement on Schedule 13G to report the acquisition that is the subject of this Schedule 13D, and is filing this schedule because of Rule 13d-1(e), 13d-1(f) or 13d-1(g), check the following box .

\* The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter disclosures provided in a prior cover page.

The information required on the remainder of this cover page shall not be deemed to be "filed" for the purpose of Section 18 of the Securities Exchange Act of 1934 (the "Act") or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act.

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1.	NAMES OF REPORTING PERSONS Pillar Pharmaceuticals 6, L.P.	
2.	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input type="checkbox"/> (b) <input checked="" type="checkbox"/>	
3.	SEC USE ONLY	
4.	SOURCE OF FUNDS* WC	
5.	CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEM 2(d) or 2(e) <input type="checkbox"/>	
6.	CITIZENSHIP OR PLACE OF ORGANIZATION Cayman Islands	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7.	SOLE VOTING POWER 0
	8.	SHARED VOTING POWER 16,748,500 (1)(3)
	9.	SOLE DISPOSITIVE POWER 0
	10.	SHARED DISPOSITIVE POWER 16,748,500 (1)(3)
11.	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 16,748,500 (1)(3)	
12.	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES <input type="checkbox"/>	
13.	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW 11 19.9% (2)(3)	
14.	TYPE OF REPORTING PERSON PN	

(1) This Amendment No. 13 (as defined below) to Schedule 13D (as defined below) is filed by Pillar Pharmaceuticals 6, L.P. (“Pillar 6”), Pillar Invest Corporation (“Pillar GP”), Pillar Partners Foundation, L.P. (“Pillar Foundation”, and, together with Pillar 6 and Pillar GP, the “Pillar Entities”), Abude Umari and Youssef El Zein (together with the Pillar Entities and Mr. Umari, the “Reporting Persons”). The Reporting Persons expressly disclaim status as a “group” for purposes of this Amendment No. 13 to Schedule 13D. The Pillar Entities exercise no voting or dispositive power over and expressly disclaim beneficial ownership of any shares of the common stock, par value \$0.001 per share (the “Common Stock”), of Idera Pharmaceuticals, Inc., a corporation organized under the laws of the state of Delaware (the “Company” or the “Issuer”), held directly by Messrs. Umari and El Zein, and Messrs. Umari and El Zein expressly disclaim beneficial ownership of any shares of Common Stock held directly by Pillar 6, Pillar Foundation and indirectly by Pillar GP.

Pillar Pharmaceuticals I, L.P. (“Pillar I”), Pillar Pharmaceuticals II, L.P. (“Pillar II”), Pillar Pharmaceuticals III, L.P. (“Pillar III”), Pillar Pharmaceuticals IV, L.P. (“Pillar IV”), Pillar Pharmaceuticals V, L.P. (“Pillar V”), and, together with Pillar I, Pillar II, Pillar III, Pillar IV, Pillar V, Pillar 6 and Pillar GP, the “Prior Pillar Holders”), previously held 97,918 shares of Common Stock. Such shares of Common Stock held by the Prior Pillar Holders were transferred to the Pillar Entities pursuant to pro rata redemptions in kind by limited partners and pro rata distributions in kind to Messrs. Umari and El Zein, in each case pursuant to the terms of the partnership agreements of the Prior Pillar Holders.

Pillar 6 directly holds (a) 2,304,180 shares of Common Stock, (b) 766,941 Common Warrants (the “Common Warrants”), which are exercisable for shares of Common Stock, but pursuant to the terms of the Common Warrants a blocker provision limits the number of Common Warrants exercisable for shares of Common Stock to the extent such exercise would allow the percentage of Common Stock held directly to exceed 19.99% (the “Blocker Provision”) and (c) no Pre-Funded Warrants (the “Pre-Funded Warrants”).

Pillar Foundation directly holds (a) 7,266,954 shares of Common Stock, (b) 6,410,425 Common Warrants, which are exercisable for shares of Common Stock, but pursuant to the terms of the Common Warrants are subject to the Blocker Provision and (c) no Pre-Funded Warrants.

All of the Common Warrants held by Pillar 6 and Pillar Foundation are currently exercisable, subject to the Blocker Provision. All Pre-Funded Warrants, prior to being exercised, were also subject to a blocker provision that limited the number of Common Warrants exercisable for shares of Common Stock to the extent such exercise would allow the percentage of Common Stock held directly to exceed 19.99%.

Mr. El Zein directly holds 26,308 shares of Common Stock and 26,875 options to buy shares of Common Stock. Mr. Umari directly holds 386,110 shares of Common Stock.

- (2) The percentage of the class was calculated based on 53,060,069 shares of Common Stock outstanding as of August 9, 2022. The percentage reported for each of the 16,748,500 shares of Common Stock reported above held by the Pillar Entities, the 16,801,683 shares of Common Stock reported below held by Mr. El Zein and the 17,134,610 shares of Common Stock reported below held by Mr. Umari is capped at 19.99% as a result of the Blocker Provisions.
- (3) An aggregate of 16,748,500 shares of Common Stock are subject to (i) a Support Agreement, dated as of September 28, 2022 (the “Support Agreement”), by and among the Company, Aceragen, Inc., a Delaware corporation (“Aceragen”), and the Reporting Persons and (ii) a Lock-Up Agreement, dated as of September 28, 2022 (the “Lock-Up Agreement”), by and among the Company and the Reporting Persons. Item 4 below contains additional information on the terms of the Support Agreement and the Lock-Up Agreement, each of which were entered into in connection with the Merger Agreement (as defined in Item 4 below).

1.	NAMES OF REPORTING PERSONS  Pillar Partners Foundation, L.P.	
2.	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input type="checkbox"/> (b) <input checked="" type="checkbox"/>	
3.	SEC USE ONLY	
4.	SOURCE OF FUNDS*  WC	
5.	CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEM 2(d) or 2(e)  <input type="checkbox"/>	
6.	CITIZENSHIP OR PLACE OF ORGANIZATION  Cayman Islands	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7.	SOLE VOTING POWER  0
	8.	SHARED VOTING POWER  16,748,500 (1)(3)
	9.	SOLE DISPOSITIVE POWER  0
	10.	SHARED DISPOSITIVE POWER  16,748,500 (1)(3)
11.	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON  16,748,500 (1)(3)	
12.	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES  <input type="checkbox"/>	
13.	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW 11  19.9% (2)(3)	
14.	TYPE OF REPORTING PERSON  PN	

1.	NAMES OF REPORTING PERSONS Pillar Invest Corporation	
2.	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input type="checkbox"/> (b) <input checked="" type="checkbox"/>	
3.	SEC USE ONLY	
4.	SOURCE OF FUNDS* AF	
5.	CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEM 2(d) or 2(e) <input type="checkbox"/>	
6.	CITIZENSHIP OR PLACE OF ORGANIZATION Cayman Islands	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7.	SOLE VOTING POWER 0
	8.	SHARED VOTING POWER 16,748,500 (1)(3)
	9.	SOLE DISPOSITIVE POWER 0
	10.	SHARED DISPOSITIVE POWER 16,748,500 (1)(3)
11.	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 16,748,500 (1)(3)	
12.	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES <input type="checkbox"/>	
13.	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW 11 19.9% (2)(3)	
14.	TYPE OF REPORTING PERSON PN	

1.	NAMES OF REPORTING PERSONS	
	Youssef El Zein	
2.	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input type="checkbox"/> (b) <input checked="" type="checkbox"/>	
3.	SEC USE ONLY	
4.	SOURCE OF FUNDS	
	AF	
5.	CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEM 2(d) or 2(e)	
	<input type="checkbox"/>	
6.	CITIZENSHIP OR PLACE OF ORGANIZATION	
	France and Lebanon	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7.	SOLE VOTING POWER
		53,183 (1)(3)
	8.	SHARED VOTING POWER
		16,748,500 (1)(3)
	9.	SOLE DISPOSITIVE POWER
		53,183 (1)(3)
	10.	SHARED DISPOSITIVE POWER
		16,748,500 (1)(3)
11.	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON	
	16,801,683 (1)(3)	
12.	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES	
	<input type="checkbox"/>	
13.	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW 11	
	19.9% (2)(3)	
14.	TYPE OF REPORTING PERSON	
	IN	

1.	NAMES OF REPORTING PERSONS	
	Abude Umari	
2.	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input type="checkbox"/> (b) <input checked="" type="checkbox"/>	
3.	SEC USE ONLY	
4.	SOURCE OF FUNDS	
	AF	
5.	CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEM 2(d) or 2(e)	
	<input type="checkbox"/>	
6.	CITIZENSHIP OR PLACE OF ORGANIZATION	
	France and Lebanon	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7.	SOLE VOTING POWER
		386,110 (1)(3)
	8.	SHARED VOTING POWER
		16,748,500 (1)(3)
	9.	SOLE DISPOSITIVE POWER
		386,110 (1)(3)
	10.	SHARED DISPOSITIVE POWER
		16,748,500 (1)(3)
11.	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON	
	17,134,610 (1)(3)	
12.	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES	
	<input type="checkbox"/>	
13.	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW 11	
	19.9% (2)(3)	
14.	TYPE OF REPORTING PERSON	
	IN	

## SCHEDULE 13D

Explanatory Note: This Amendment No. 13 to Schedule 13D (this "Amendment No. 13") amends the Schedule 13D filed on November 14, 2011 (the "Original 13D"), as amended by Amendment No. 1 to Schedule 13D filed on November 16, 2012 ("Amendment No. 1"), Amendment No. 2 to Schedule 13D filed on June 5, 2013 ("Amendment No. 2"), Amendment No. 3 to Schedule 13D filed on October 9, 2013 ("Amendment No. 3"), Amendment No. 4 to Schedule 13D filed on October 17, 2016 ("Amendment No. 4"), Amendment No. 5 to Schedule 13D filed on July 25, 2019 ("Amendment No. 5"), Amendment No. 6 to Schedule 13D filed on May 7, 2020 ("Amendment No. 6"), Amendment No. 7 to Schedule 13D filed on August 17, 2020 ("Amendment No. 7"), Amendment No. 8 to Schedule 13D filed on December 30, 2020 ("Amendment No. 8"), Amendment No. 9 to Schedule 13D filed on April 1, 2021 ("Amendment No. 9"), Amendment No. 10 to Schedule 13D filed on June 7, 2021 ("Amendment No. 10"), Amendment No. 11 to Schedule 13D filed on June 24, 2022 ("Amendment No. 11"), and Amendment No. 12 to Schedule 13D filed on July 1, 2022 ("Amendment No. 12", and, together with the Original 13D, Amendment No. 1, Amendment No. 2, Amendment No. 3, Amendment No. 4, Amendment No. 5, Amendment No. 6, Amendment No. 7, Amendment No. 8, Amendment No. 9, Amendment No. 10, and Amendment No. 11, the "Schedule 13D") and relates to the Common Stock. The principal executive offices of the Issuer are located at 505 Eagleview Blvd., Suite 212, Exton, PA 19341.

Except as specifically amended by this Amendment No. 13, the disclosure in the Schedule 13D remains in full force and effect. Capitalized terms used in this Amendment No. 13 but not otherwise defined shall have the meanings given to such terms in the Schedule 13D.

### **ITEM 3. Source and Amount of Funds or Other Consideration.**

The information set forth in Item 4 hereof is hereby incorporated by reference into this Item 3, as applicable.

### **ITEM 4. Purpose of Transaction.**

Item 4 to this Schedule 13D is hereby amended to add the following:



### Support Agreement

As previously reported by the Company on Forms 8-K filed with the SEC on September 28, 2022 and September 30, 2022, the Company entered into an Agreement and Plan of Merger, dated September 28, 2022 (the “Merger Agreement”), by and among the Company, Bell Merger Sub I, Inc., a Delaware corporation and a wholly owned subsidiary of the Company, Bell Merger Sub II, LLC, a Delaware limited liability company and a wholly owned subsidiary of the Company, and Aceragen, pursuant to which the Company acquired Aceragen.

Pursuant to the Merger Agreement, the Company has agreed to hold a stockholders’ meeting (the “Special Meeting”) to submit the following matters to its stockholders for their consideration: (i) the approval of the conversion of the Company’s Series Z Preferred Stock into shares of Common Stock (the “Conversion Proposal”); (ii) the approval of an amendment to the Company’s certificate of incorporation to authorize sufficient shares of Common Stock for the conversion of the Series Z Preferred Stock issued pursuant to the Merger Agreement (the “Charter Amendment Proposal”); and (iii) the approval to effect a reverse stock split of all of the Company’s issued and outstanding shares of Common Stock (the “Reverse Stock Split Proposal” and, together with the Conversion Proposal and the Charter Amendment Proposal, the “Merger Agreement Meeting Proposals”).

In connection with the Company’s entrance into the Merger Agreement, the Company entered into the Support Agreement, which provides that, among other things, the Reporting Persons have agreed to vote or cause to be voted all of the shares of Common Stock owned by the Reporting Persons as of the date of the Special Meeting in favor of the Merger Agreement Meeting Proposals at the Special Meeting to be held in connection therewith. The Support Agreement also contains an exception allowing the Reporting Persons to sell, assign, transfer, tender or otherwise dispose of up to 450,000 shares of Common Stock until the date of the Special Meeting.

The foregoing description of the Support Agreement does not purport to be complete and is qualified in its entirety by the full text of the form of Support Agreement, a copy of which is attached hereto as Exhibit 99.1 and is incorporated herein by reference.

### Lock-Up Agreement

In connection with the Company’s entrance into the Merger Agreement, the Company and the Reporting Persons also entered into the Lock-Up Agreement, which provides that the Reporting Persons will be subject to a 180-day lockup on the sale or transfer of shares of Common Stock or securities convertible into or exercisable for or exchangeable for Common Stock held by the Reporting Persons at the closing of the merger contemplated under the Merger Agreement. The Lock-Up Agreement also contains exceptions allowing the Reporting Persons to (i) sell, assign, transfer, tender or otherwise dispose of up to 450,000 shares of Common Stock until the date of the Special Meeting and (ii) pledge a certain amount of shares of Common Stock.

The foregoing description of the Lock-Up Agreement does not purport to be complete and is qualified in its entirety by the full text of the form of Lock-Up Agreement, a copy of which is attached hereto as Exhibit 99.2 and is incorporated herein by reference.

Other than as described above, the Reporting Persons do not have any plans or proposals which would result in any of the following:

- (a) The acquisition by any person of additional securities of the Issuer, or the disposition of securities of the Issuer;
- (b) An extraordinary corporate transaction, such as a merger, reorganization or liquidation, involving the Issuer or any of its subsidiaries;
- (c) A sale or transfer of a material amount of assets of the Issuer or any of its subsidiaries;
- (d) Any change in the present Board or management of the Issuer, including any plans or proposals to change the number or term of directors or to fill any existing vacancies on the Board;

- (e) Any material change in the present capitalization or dividend policy of the Issuer;
- (f) Any other material change in the Issuer's business or corporate structure;
- (g) Changes in the Issuer's charter, bylaws or instruments corresponding thereto or other actions that may impede the acquisition of control of the Issuer by any person;
- (h) Causing a class of securities of the Issuer to be delisted from a national securities exchange or to cease to be authorized to be quoted in an inter-dealer quotation system of a registered national securities association;
- (i) A class of equity securities of the Issuer becoming eligible for termination of registration pursuant to Section 12(g)(4) of the Securities Exchange Act of 1934, as amended; or
- (j) Any action similar to any of those enumerated above.

The Reporting Persons reserve the right, based on all relevant factors and subject to applicable law or other restrictions, at any time and from time to time, to acquire additional Shares, dispose of some or all of the Shares, in each case in open market or private transactions, block sales or otherwise, and review or reconsider their position, change their purpose, take other actions (including actions that could involve one or more of the types of transactions or have one or more of the results described in clauses (a) through (j) of the foregoing paragraph of this Item 4) or formulate and implement plans or proposals with respect to any of the foregoing.

The Reporting Persons may also seek information from management and the Issuer's Board of Directors, and may engage in further discussions with management, the Issuer's Board of Directors, other stockholders of the Issuer and other relevant parties, concerning the business, operations, governance, management, strategy, capitalization and/or future plans of the Issuer, or in proposing one or more of the other actions described in subparagraphs (a) through (j) of this Item 4.

Except as set forth in this Schedule 13D, no contract, arrangement, relationship or understanding (either oral or written) exists among the Reporting Persons as to the acquisition, disposition, voting or holding of Shares.

The Reporting Persons intend to review their investment in the Issuer from time to time on the basis of various factors, including the Issuer's business, financial condition, results of operations and prospects, general economic and industry conditions, the securities markets in general and those for the Issuer's stock in particular, as well as other developments.

**ITEM 5. Interest in Securities of the Issuer.**

(a) — (b)

The information set forth in Item 4 hereof is hereby incorporated by reference into this Item 5, as applicable.

The following sets forth, as of the date of this Amendment No. 13, the aggregate number of shares of Common Stock and percentage of shares of Common Stock beneficially owned by each of the Reporting Persons, as well as the number of shares of Common Stock as to which each Reporting Person has the sole power to vote or to direct the vote, shared power to vote or to direct the vote, sole power to dispose or to direct the disposition, or shared power to dispose or to direct the disposition of, as of the date hereof, based on 53,060,069 shares of Common Stock outstanding at August 9, 2022. Due to the Blocker Provisions, the aggregate shares of Common Stock deemed to be beneficially owned by each of the Reporting Persons as of the date hereof represented approximately 19.99% of shares of Common Stock outstanding as of August 9, 2022.

Reporting Person	Amount beneficially owned	Percent of class	Sole power to vote or to direct the vote	Shared power to vote or to direct the vote	Sole power to dispose or to direct the disposition	Shared power to dispose or to direct the disposition
<b>Pillar 6</b>	16,748,500	19.9%	0	16,748,500	0	16,748,500
<b>Pillar Foundation</b>	16,748,500	19.9%	0	16,748,500	0	16,748,500
<b>Pillar GP</b>	16,748,500	19.9%	0	16,748,500	0	16,748,500
<b>Abude Umari</b>	17,134,610	19.9%	386,100	16,748,500	386,100	16,748,500
<b>Youssef El Zein</b>	16,801,683	19.9%	53,183	16,748,500	53,183	16,748,500

(c) Except as set forth in the table below, no transactions in the Common Stock were effected by the Reporting Persons during the past 60-day period.

Reporting Person	Date	Amount of Securities	Price per Share	Where and How Effected
<b>Pillar Foundation</b>	September 27, 2022	1,533,159	\$ 0.01	Cash Warrant Exercise

(d) No persons other than the Reporting Persons and their investment clients have the right to participate in the receipt of dividends from, or the proceeds from the sale of, the shares of Common Stock covered hereby.

(e) Not Applicable.

#### **ITEM 6. Contracts, Arrangements, Understandings or Relationships With Respect to Securities of the Issuer.**

The information set forth in Item 4 hereof is hereby incorporated by reference into this Item 6. Except as referenced above or described in Item 4 hereof, there are no contracts, arrangements, understandings or relationships among the Reporting Persons or between such Reporting Persons and any other person with respect to any securities of the Company.

#### **ITEM 7. Materials to be Filed as Exhibits.**

Exhibit 99.1: [Form of Support Agreement \(incorporated by reference to Exhibit C to the Merger Agreement, as filed as Exhibit 2.1 to the Company's Current Report on Form 8-K filed on September 30, 2022\)](#)

Exhibit 99.2: [Form of Lock-Up Agreement \(incorporated by reference to Exhibit B to the Merger Agreement, as filed as Exhibit 2.1 to the Company's Current Report on Form 8-K filed on September 30, 2022\)](#)

Exhibit 99.3: [Joint Filing Agreement as required by Rule 13d-1\(k\)\(1\) under the Securities Exchange Act of 1934, as amended](#)

**SIGNATURE**

After reasonable inquiry and to the best of my knowledge and belief, each of the undersigned hereby certifies that the information set forth in this statement is true, complete and correct.

EXECUTED as a sealed instrument this 5th day of October, 2022.

**PILLAR PHARMACEUTICALS 6, L.P.  
CORPORATION**

By: Pillar Invest Corporation, its general partner

By: /s/ Youssef El Zein  
Name: Youssef El Zein  
Title: Director

**PILLAR PARTNERS FOUNDATION, L.P.**

By: /s/ Youssef El Zein  
Name: Youssef El Zein  
Title: Director

**PILLAR INVEST CORPORATION**

By: /s/ Youssef El Zein  
Name: Youssef El Zein  
Title: Director

/s/ Abude Umari  
Abude Umari

/s/ Youssef El Zein  
Youssef El Zein

## JOINT FILING AGREEMENT PURSUANT TO RULE 13d-1(k)(1)

The undersigned acknowledge and agree that the foregoing statement on Schedule 13D is filed on behalf of each of the undersigned and that all subsequent amendments to this statement on Schedule 13D shall be filed on behalf of each of the undersigned without the necessity of filing additional joint filing statements. The undersigned acknowledge that each shall be responsible for the timely filing of such amendments, and for the completeness and accuracy of the information concerning him, her or it contained herein, but shall not be responsible for the completeness and accuracy of the information concerning the other entities or persons, except to the extent that he, she or it knows or has reason to believe that such information is inaccurate.

Date: October 5, 2022

**PILLAR PHARMACEUTICALS 6, L.P.  
CORPORATION**

By: Pillar Invest Corporation, its general partner

By: /s/ Youssef El Zein

Name: Youssef El Zein

Title: Director

**PILLAR PARTNERS FOUNDATION, L.P.**

By: /s/ Youssef El Zein

Name: Youssef El Zein

Title: Director

**PILLAR INVEST CORPORATION**

By: /s/ Youssef El Zein

Name: Youssef El Zein

Title: Director

/s/ Abude Umari

Abude Umari

/s/ Youssef El Zein

Youssef El Zein