



CYTEIR THERAPEUTICS, INC.
128 SPRING ST., BUILDING A, SUITE 510
LEXINGTON, MA 02421



SCAN TO
VIEW MATERIALS & VOTE



VOTE BY INTERNET - www.proxyvote.com or scan the QR Barcode above

Use the Internet to transmit your voting instructions and for electronic delivery of information up until 11:59 p.m. Eastern Time on June 14, 2022. Have your proxy card in hand when you access the web site and follow the instructions to obtain your records and to create an electronic voting instruction form.

During the Meeting – Go to www.virtualshareholdermeeting.com/CYT2022

You may attend the meeting via the internet and vote during the meeting. Have the information that is printed in the box marked by the arrow available and following the instructions.

VOTE BY PHONE - 1-800-690-6903

Use any touch-tone telephone to transmit your voting instructions up until 11:59 p.m. Eastern Time the day before the cut-off date or meeting date. Have your proxy card in hand when you call and then follow the instructions.

VOTE BY MAIL

Mark, sign and date your proxy card and return it in the postage-paid envelope we have provided or return it to Vote Processing, c/o Broadridge, 51 Mercedes Way, Edgewood, NY 11717.

TO VOTE, MARK BLOCKS BELOW IN BLUE OR BLACK INK AS FOLLOWS:

KEEP THIS PORTION FOR YOUR RECORDS
DETACH AND RETURN THIS PORTION ONLY

THIS PROXY CARD IS VALID ONLY WHEN SIGNED AND DATED.

The Board of Directors recommends you vote FOR the following:

1. Election of Directors

Nominees

1a. Jeffrey Humphrey, M.D.

1b. Stephen Sands

1c. John Thero

For Against Abstain

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The Board of Directors recommends you vote FOR the following proposal:

2. Ratification of selection of Ernst & Young LLP as the independent registered public accounting firm for the fiscal year ending December 31, 2022.

For Against Abstain

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NOTE: Such other business as may properly come before the meeting or any adjournment thereof.

Please sign exactly as your name(s) appear(s) hereon. When signing as attorney, executor, administrator, or other fiduciary, please give full title as such. Joint owners should each sign personally. All holders must sign. If a corporation or partnership, please sign in full corporate or partnership name by authorized officer.

Signature [PLEASE SIGN WITHIN BOX]

Date

Signature (Joint Owners)

Date

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Important Notice Regarding the Availability of Proxy Materials for the Annual Meeting:
The Notice and Proxy Statement, Annual Report and Form 10-K are available at www.proxyvote.com

CYTEIR THERAPEUTICS, INC.

THIS PROXY IS SOLICITED ON BEHALF OF THE BOARD OF DIRECTORS

ANNUAL MEETING OF SHAREHOLDERS

JUNE 15, 2022

The shareholder(s) hereby appoint(s) David Gaiero and Andrew Gengos, or either of them, as proxies, each with the power to appoint his substitute, and hereby authorize(s) them to represent and to vote, as designated on the reverse side of this ballot, all of the shares of Common Stock of Cyteir Therapeutics, Inc. that the shareholder(s) is/are entitled to vote at the Annual Meeting of Shareholders to be held virtually at 1:00 p.m., Eastern Time on Wednesday, June 15, 2022, and any adjournment or postponement thereof.

THIS PROXY, WHEN PROPERLY EXECUTED, WILL BE VOTED AS DIRECTED BY THE SHAREHOLDER(S). IF NO SUCH DIRECTIONS ARE MADE, THIS PROXY WILL BE VOTED IN ACCORDANCE WITH THE BOARD OF DIRECTORS' RECOMMENDATION.

PLEASE MARK, SIGN, DATE AND RETURN THIS PROXY CARD PROMPTLY USING THE ENCLOSED REPLY ENVELOPE

Continued and to be signed on reverse side