Immunology Update - Winter 2021

In this issue...

- Meet the FOCIS 2021 Keynote Speakers
- Submit Your Abstract By February 22
- FOCIS 2021 - Group Registration Discount
- FOCISed Pre-Meeting Courses - Add to Your FOCIS 2021 Registration to Save!
- Berkeley Lights - Discover the Drivers of Polyfunctionality in T Cells
- FCE Spotlight - Welcome New FCE Directors
- Immudex - Unravel the Complexity of the Immune System
- Renew Your FOCIS Membership by March 31
- Advanced Course in Basic & Clinical Immunology - Attend for Free!

Meet the FOCIS 2021 Keynote Speakers

The FOCIS Annual Meeting is the leading forum bringing together diverse translational immunologists to facilitate research innovations and cross-disciplinary networking opportunities that cannot be found at any other meeting.

We invite you to learn more about our featured Keynote Speakers for FOCIS 2021:

- **Adrian Hill, PhD**, University of Oxford
- **Arlene Sharpe, MD, PhD**, Harvard Medical School
- **Tadatsugu Taniguchi, PhD**, University of Tokyo
- **Bruce Walker, MD**, Ragon Institute

Register for FOCIS 2021 and you will gain access to more than 20 scientific sessions with more than 50 top clinicians and researchers from around the globe, speaking on cutting-edge topics across immunology and its related fields. Select sessions will be recorded with the speaker's permission and posted for on-demand viewing for one month after the program concludes.

Stay tuned for even more program updates in the coming weeks!

Register Now

FOCIS 2021 Abstract Deadline Extended

Submit your abstract for the opportunity to earn a Research Award to attend FOCIS 2021 for FREE! **The deadline to submit has been extended to Monday, February 22.**

This is the absolute latest to submit your research for consideration to be a part of the FOCIS 2021 program. Any incomplete submissions will not be considered and the submission portal will be unavailable after February 22.

If you intend to submit your research it is highly advised that you **review the topic list** and submit your research immediately! All submissions, in-progress or new, received by February 22 will be considered for both oral and poster sessions. Abstracts will not be accepted after the extended deadline.

Submit an Abstract

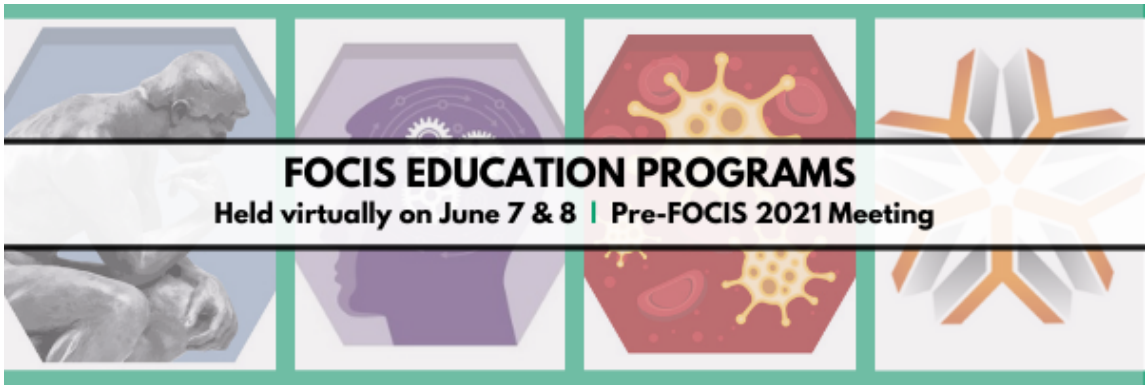
FOCIS 2021 Group Registration

Do you have a working group or organization that would like to register for FOCIS 2021? Take advantage of our group discount! to be eligible, you must have at least three or more members from the same organization or working group that you will be registering.

Learn more about eligibility requirements for FOCIS 2021 Group Registration **here**. Group invoices are available upon request. Contact **info@focisnet.org** for additional details.

Start a Group Registration

Bundle Your Registrations & Save

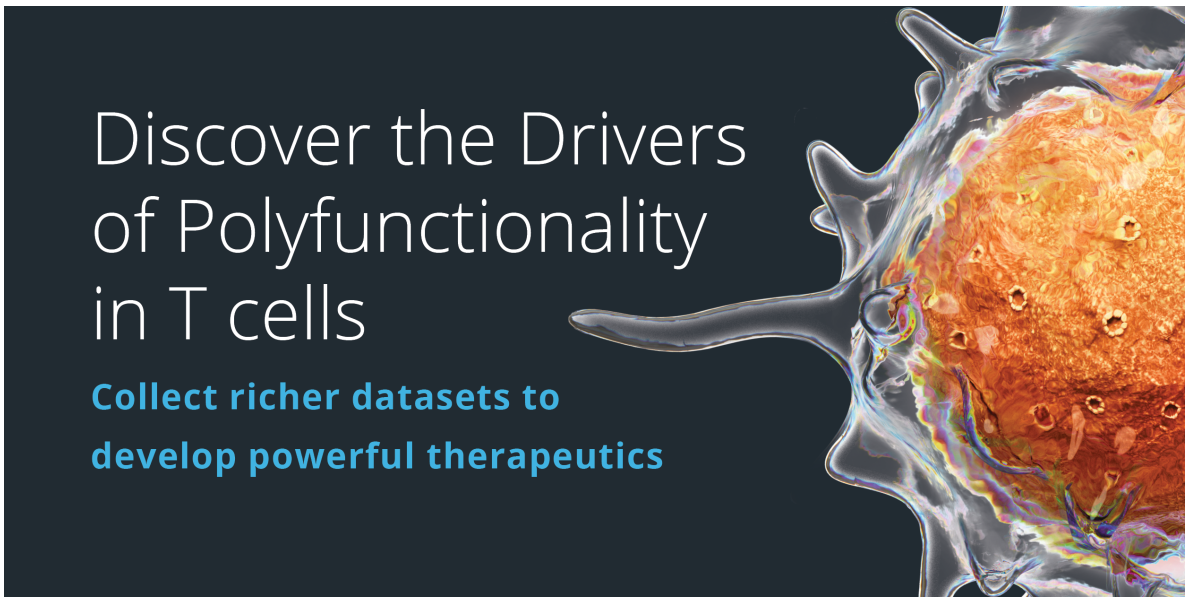


Don't forget to add the pre-meeting FOCISed courses when you register for the Annual Meeting to save even more!

FOCIS educational programs will once again take place virtually, June 7 and June 8. Add one or all four courses/workshops to your order. Can't watch the live broadcast? You will have

access to the recordings for one month following the program so you can learn on your schedule!

Register Now



#dedicated

The challenges

Polyfunctional T cells — T cells that produce multiple cytokines — are considered the most potent antitumor effector T cells. Yet, genetic drivers of their differentiation and function are poorly understood, partially because T cell phenotypes are extremely heterogeneous. Clearly, single-cell characterization is key to identifying and understanding polyfunctionality. However, most existing single-cell methods destroy your precious cells, preventing the ability to directly link cytokine secretion to gene expression.

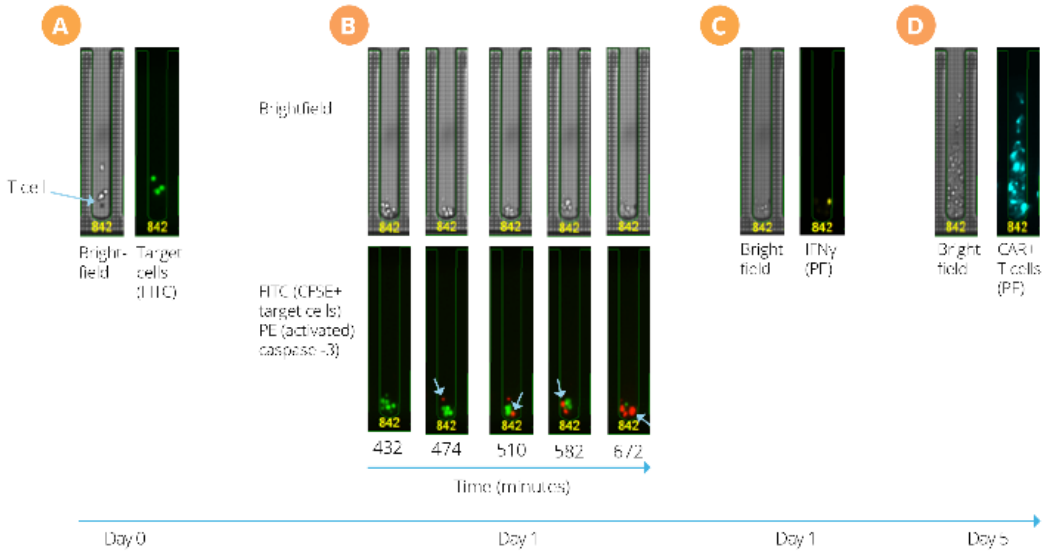
The Opto™ Cell Therapy Development workflow allows you to characterize thousands of single T cells and recover them alive for downstream analysis providing the richer datasets required to discover drivers of polyfunctionality and develop better therapeutics.

Find the most promising T cells

The Opto Cell Therapy Development workflow is built on the following steps:

- Selecting defined subpopulations of T cells based on size and phenotype
- **(A)** Culturing and stimulating individual cells in either 1500 or 3500 NanoPenTM chambers (0.75 nL reaction chambers) with antigen-presenting cells or beads

- Sequentially assaying even small populations of cells for cytotoxicity and serial killing **(B)**, cytokine secretion **(C)**, and proliferation **(D)**.
- Recovering the most promising T cells for downstream analysis



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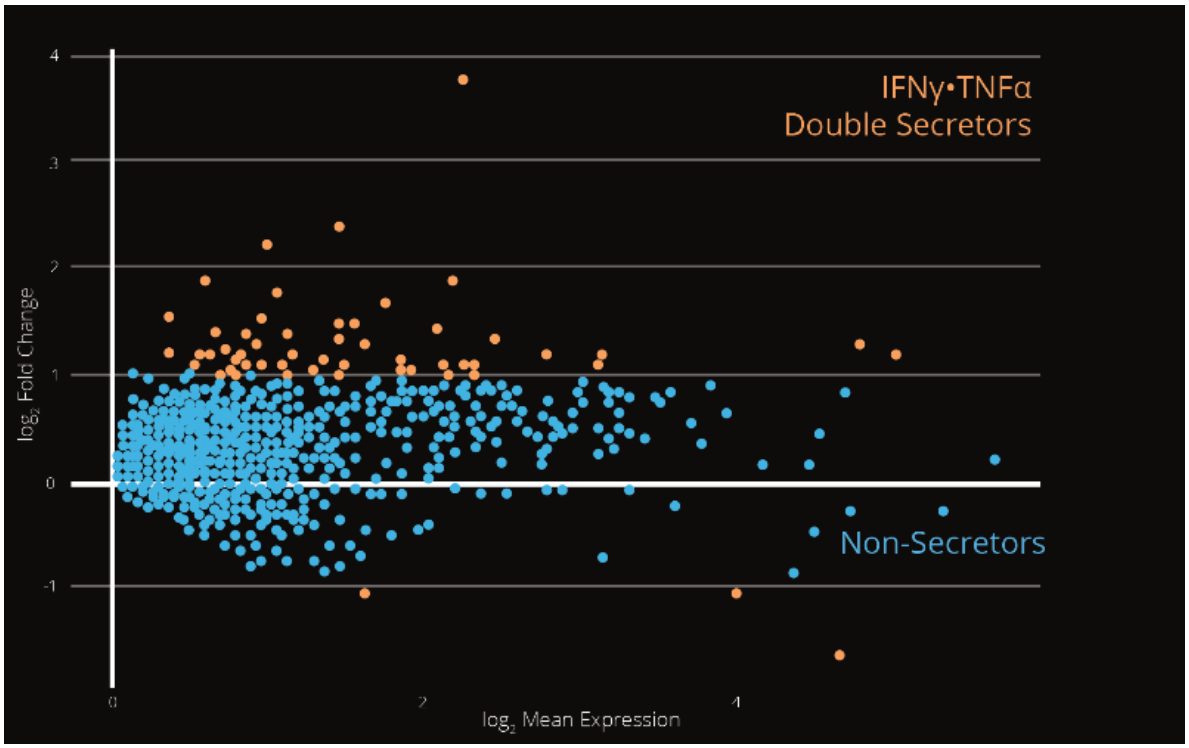
Rapid multidimensional analysis of single T cells

A. A single T cell at onset of incubation with target cells (green) in a NanoPen chamber on an OptoSelectTM chip. **B**. Images of the same cells, over time in a cytotoxicity assay. Cells with activated caspase-3 fluoresce in PE (red). The arrows highlight serial killing events. **C.** Images of the same cells, after 11 hours of incubation, show that the T cell secreted IFNγ. The IFNγ-capture bead fluoresces in PE (yellow). **D.** After 5 days of culture, proliferating T cells are observed in brightfield and by staining with fluorescent anti-CAR antibody (blue). These images confirm that serial killing, IFNγ secretion and antigen-specific proliferation were each observed from a single T cell, in less than a week.

Understand what drives the most powerful T cells

The key to discovering why polyfunctional T cells behave the way they do are the gene expression patterns that underlie their desired phenotypes. To achieve this with our workflow, cytokine secretion is measured from single T cells on-chip. Cells are lysed and barcoded cDNA is generated on beads within nanoliter-sized reaction chambers. cDNA-coated beads are exported and a gene expression profile is generated by sequencing using NGS techniques. This gene expression profile can then be directly linked to each individual cell's cytokine secretion profile to identify drivers of polyfunctionality and develop more efficacious therapies.



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Identify differentially expressed genes across functionally distinct populations
Single cells, classified by the cytokines they secrete, can be further characterized by which genes are differentially expressed between them. This data is critical when developing therapeutics from polyfunctional T cells best able to control tumor growth.

Visit our resource center to learn more about these and other capabilities of the Opto Cell Therapy Development workflow.

BERKELEY LIGHTS

FCE Spotlight

FOCIS Welcomes Four New FOCIS Centers of Excellence Directors

The FOCIS Centers of Excellence (FCE) is a network of multidisciplinary academic medical centers that encompass three or more areas of research relevant to clinical immunology and have met criteria to be designated by FOCIS as FCEs. The FCE network creates a community of researchers and clinicians accelerating multidisciplinary scientific and clinical innovation and education worldwide.

Please join us in welcoming the newest FCE Directors to the FCE network. Be sure to watch for one-on-one interviews with these and other network FCE Directors in future issues of *Immunology Update*.

View the FCE Network Directory

Renew your Membership by March 31

If you haven't already, be sure to renew you FOCIS membership by March 31 or risk losing out on all that your membership has to offer! If your membership is past due and not renewed by March 31 your account will be suspended.

Don't miss out on these exclusive member benefits:

- Networking opportunities with our global community;
- FOCISed courses to expand your knowledge bank;
- Annual savings in excess of $1,000 USD for the FOCIS Annual Meeting and FOCISed courses;
- Complimentary registration to the 2021 Advanced Course in Basic & Clinical Immunology;
- Access to our quarterly eNewsletter, *Immunology Update*;
- Resources and tools to help advance your career; and
- Complimentary job postings in our career center!

Renew My Membership

Complimentary Attendance for FOCIS Members

We are less than two weeks until the **FOCIS Advanced Course in Basic & Clinical Immunology**. Did you know that FOCIS members in good standing can attend for free? Log into the **FOCIS Member Portal** to ensure your membership is up-to-date and then register for the Advanced Course. Certain sessions will be recorded and available for viewing for one month following the course.

Register Now

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