

TEAM

A. Screening Committee for selection of candidates

1. Dr. Praveen K Gupta, VB Division, Chairman
2. Dr. Prasad Thomas, B&M Division
3. Dr. Subhashree Parida, P&T Division
4. Dr. Suman Kumar, VPH Division
5. Dr. Sujoy K Dhara, VB Division

B. Finance cum Purchase Committee

1. Dr. Sahadeb Dey, Medicine Division, Chairman
2. Dr. Sanchay Biswas, CADRAD
3. Dr. Deepak Kumar, VB Division
4. Shri Sushil K Giri, Assistant, VB Division
5. Shri Syed Mohsin Ali, AF&AO
6. Shri Shyam Sunder, AA0(P-I)
7. Dr. Sujoy K Dhara, VB Division

C. Accommodation Committee

1. Dr. Gautham Kolluri (CARI),
2. Dr. Manjit Panigrahi, AG Division
3. Dr. Mukesh Kumar, Biochemistry Division
4. Dr. Yasotha Thirupathi, P&C Division

D. Food Committee

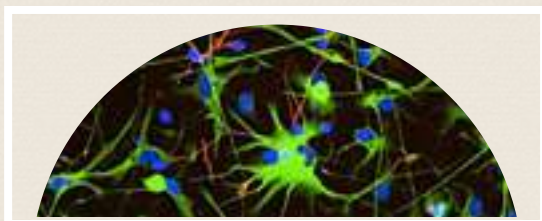
1. Dr. Suman Talukder, LPT Division, Chairman
2. Dr. Devendra Kumar, LPT Division
3. Dr. Sagar Chand, LPT Division
4. Dr. Mukesh Bhatt, CADRAD
5. Dr. Ashutosh, (MVC Scholar), LPT Division
6. Mr. Naimish Mishra, T-1, Horticulture

E. Session Management Committee

1. Dr. Ajay Kumar, Biochemistry Division, Chairman
2. Dr. Deepak Kumar, VB Division
3. Dr. Irungbam Karuna Devi, Biochemistry Division
4. Dr. Anshuk Sharma, P&T Division
5. Dr. Aneasha VA, P&T Division

F. Publication Committee

1. Dr. Jyotirmoy Ghosh, (NIANP), Chairman
2. Dr. Basaveraj K Sajjanar, SRS Bangalore
3. Dr. Irungbam Karuna Devi, Biochemistry Division
4. Dr. Sujoy K Dhara, VB Division



ABOUT THE INSTITUTE



Indian Veterinary Research Institute (IVRI) is located at Izatnagar, Bareilly in Uttar Pradesh state. It is an advanced research facility in the field of veterinary science and allied branches. Initially established as Imperial Bacteriological Laboratory (1889 at Pune), the institute was renamed few times and finally post independence it was named as Indian Veterinary Research Institute. Currently it is one of the Deemed Universities under Indian Council of Agricultural Research (ICAR). IVRI conducts research, teaching and extension activities. The institute has 200+ scientists and 750+ students, runs 230+ different research projects in state of the art laboratories. Besides UG degree, IVRI offers 22 degree programmes at master level and 19 disciplines for PhD. Please visit the institute website: ivri.nic.in



PATRON

Dr. Triveni Dutt

Director-cum-Vice Chancellor ICAR-IVRI, Izatnagar

CO - PATRONS

Dr. Sanjay K. Singh, JD (Res),

Dr. K. P. Singh, JD (CADRAD)

Dr. S. K. Mendiratta, JD (Acad),

Dr. Rupasi Tiwari, JD (E. E.)

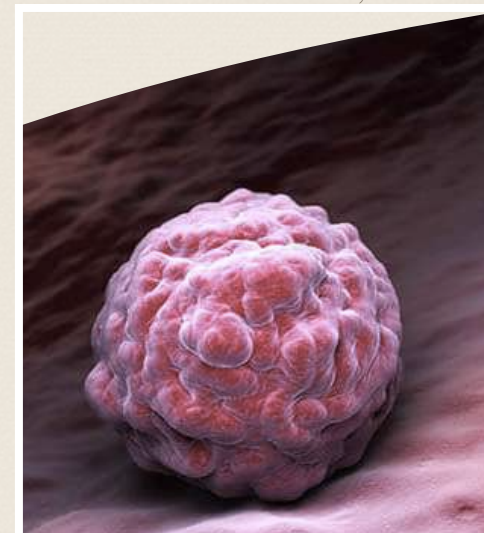
Dr. C. Madhan Mohan, Head, Division of Veterinary Biotechnology



SERB- SPONSORED WORKSHOP ON BASIC TECHNIQUES FOR STEM CELL RESEARCH

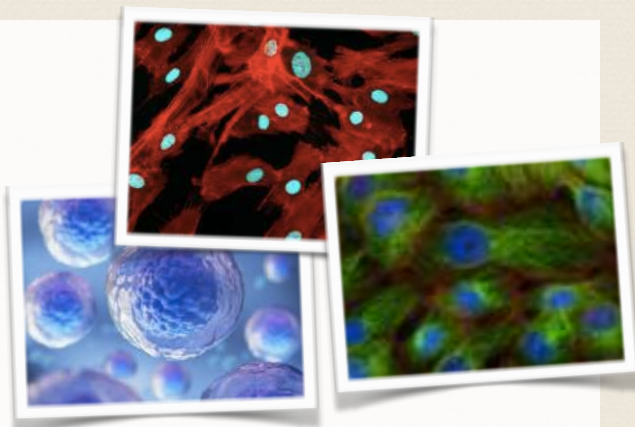
ICAR-IVRI, IZATNAGAR

FEB 26- MAR 6, 2024



Stem cells are defined as cells with two basic features: a) perpetual self renewal, and b) differentiation. Self renewal property allows stem cells to grow in tissue culture dishes for an indefinite period and thus they supply cells required for research or therapy. On the other hand, when stem cells undergo differentiation, they convert into certain lineage of tissues. Stem cells are classified different ways, based on source and their ability to produce number/types of differentiated tissues. In the recent decades, it has been demonstrated that somatic cells can be induced to acquire stem cell properties. They are called Induced (Pluripotent) stem cells. Isolation and research on stem cells find different applications in learning developmental biology, and in regenerative medicine.

For the benefit of participants ("future stem cell biologists"), the current workshop aims a) to provide them hands on training, b) to demonstrate them primary features of stem cells and c) to enrich their knowledge through lectures by eminent experts.



Objectives

- 1) To provide hands-on training on Basic Techniques for Stem Cell Research to UG (4th year or Advanced), PG and PhD students;
- 2) To prepare human resources for academia and business related to stem cell research and applications in biomedical science

Focus Areas

- How to grow stem cells
- How to preserve stem cells for long term applications (Cryopreservation)
- How to characterize and identify stem cells (Morphology, Immuno staining, Flow-cytometry, Imaging)
- How to assay proliferation of stem cells (MTT Assay; Gene expression studies, Real-time PCR)
- How to differentiate stem cell (Detection by histochemistry)
- How to analyze and document data of stem cells (Bioinformatics)
- Learning about different stem cells and development biology (Production of cardiomyocytes, pancreatic islets, stem cells for retinal disorders, early progenitors, Organoids, organ on chip, interspecies chimerism)

Target Audience

Students (20) pursuing studies at UG (4th year or above), PG and PhD level

COURSE DIRECTOR (EVENT ORGANIZER)

Sujoy K. Dhara, PhD
Stem Cell Lab, VB Division
ICAR-IVRI, Izatnagar, Bareilly, UP 243122
Email: stemcellworkshopivri@gmail.com

RESOURCE PERSONS

The course faculty includes resource persons from IVRI, other national institutes and for online lecture, experts from abroad (USA, UK, Netherlands, Israel, and Australia)

COURSE COORDINATORS

Dr. Praveen K Gupta	Dr. Sahadeb Dey
Dr. Gautham Kolluri (CARI)	Dr. Basaveraj K Sajjanar (IVRI, Bangalore)
Dr. Mukesh Kumar	Dr. Irungbam Karuna Devi
Dr. Suman Talukder	Dr. Yasotha Tirupathi
Dr. Ajay Kumar	Dr. Sanchay Biswas
Dr. Jyotirmoy Ghosh (NIANP, Bangalore),	Dr. Saurabh Gupta

CO-COURSE COORDINATORS

Dr. Prasad Thomas	Dr. Manjit Panigrahi
Dr. Subhashree Parida	Dr. Deepak Kumar
Dr. Suman Kumar	Dr. Devendra Kumar
Dr. Anshuk Sharma	Dr. Sagar Chand
Dr. Aneesha VA	Dr. Mukesh Bhatt

SCIENCE TEAM

A. HANDS ON TRAINING

Dr. Sujoy K Dhara
Dr. Yasotha Tirupathi
Dr. Saurabh Gupta
Dr. Naveen Saini
Ms. Divya Dayal



B. DEMONSTRATION CUM LECTURES

- 1) **DR. SAURABH GUPTA/ DR. SUJOY K DHARA**- Stem cell characterization by immunostaining (CD90 for mesenchymal stem cells); Differentiation and identification of differentiated cells by histochemical staining; Real-time pcr for stem cell research
- 2) **DR. I KARUNA DEVI**- Assessment of stem cell proliferation by mtt assay; Protein isolation and quantification (from stem cells); SDS-PAGE/ western blot for the detection of proliferation markers of stem cells
- 3) **DR. PRAVEEN K. GUPTA**- Maintenance of animal cell culture lab: demonstration of expression of transgene in animal cells
- 4) **DR. VIKAS CHANDRA**- Flow-cytometry of stem cells
- 5) **DR. SOHINI DEY/ DR. C. MADHAN MOHAN**- Expression and detection of recombinant protein/ ELISA
- 6) **DR. MUKESH KUMAR**- RNA isolation and cDNA synthesis (from stem cells) for the detection of proliferation markers of stem cells
- 7) **DR. GVPPS RAVI KUMAR, NBAGR, KARNAL**- Analysis of data: next generation sequencing / real-time PCR
- 8) **DR. YASOTHA THIRUPATHI/ DR. PRAVEEN. K. SINGH/ DR. SUBRATA K GHOSH** Visit to high end instruments: SEM/ in vivo imaging/ germplasm centre

C. EXPERT LECTURES

IVRI

- 1) **DR. SUJOY K DHARA**
Basics of stem cells
Neural stem cells
- 2) **DR. KAUSHAL K. RAJAK**
Good laboratory practices
- 3) **DR. I KARUNA DEVI**
How similar are stem cells and cancer cells?
- 4) **DR. DEEPAK KUMAR**
Basics of different types of polymerase chain reaction (PCR)
- 5) **DR. SAHADEB DEY**
Regulatory requirements for cell therapy in India
- 6) **DR. BASAVARAJ K SAJJANAR**
Epigenetics of stem cells

OTHER INDIAN INSTITUTE

- 1) **DR. JYOTIRMOY GHOSH**
Diffe1rentiation of stem cells with special reference to osteogenesis
- 2) **DR. RATAN CHOUDHARY**
Mammary stem cells
- 3) **DR. GVPPS RAVI KUMAR, NBAGR, KARNAL**
Analysis of data: next generation sequencing / real-time PCR

EMINENT SPEAKERS FROM ABROAD



DR. MEGHA AGARWAL,
STANFORD UNIVERSITY,
USA:

Stem Cells in Skeletal Muscle Development, Regeneration and Congenital Heart Disease



DR. JUN WU, UNIVERSITY OF TEXAS, SOUTHWESTERN

MEDICAL CENTRE: Dynamic Pluripotent Stem Cells and Their Applications



DR. CERYS MANNING, UNIVERSITY OF MANCHESTER, UK:

Modelling developmental eye disorders in human retinal organoids



Dr. MAJID E. WARKIANI, UNIVERSITY OF TECHNOLOGY SYDNEY, AUSTRALIA:

Microfluidic Systems for Cell Biology and Translation into Practice



DR. MICHA DRUKKER, UNIVERSITY OF LEIDEN, NETHERLANDS:

Stem Cells as Agents for Species Revival



DR. BARAK BLUM, UNIVERSITY OF WISCONSIN, USA

Pancreas Development and regeneration



DR. MEIR SHAMAY, BAR ILAN UNIVERSITY, ISRAEL:

Oncovirus manipulating endogenous transposable elements to promote tumor growth



Dr. S. BHATTACHARYA, BAR ILAN UNIVERSITY, ISRAEL:

CRISPR/dCas9 Assay for identification of directionality of protein recruitment in cells



DR. ARNAB GHOSH, UNIVERSITY OF NEWCASTLE, AUSTRALIA:

Unleashing the potential of Stem Cells and Stem cell-derived Organoids in Gynecological Cancer Research

**DST SERB sponsored workshop on
Basic Techniques for Stem Cell Research (Feb 26- Mar 6, 2024)
Online Lectures by Eminent Speakers**

Sl No	Speaker	Title	Date and Indian Time	Google Form Link for Registration
1	Dr. Jun Wu New York Stem Cell Foundation – Robertson Investigator Virginia Murchison Linthicum Scholar in Medical Research Department of Molecular Biology UT Southwestern Medical Center 5323 Harry Hines Boulevard Dallas, TX 75390-9148, USA	Dynamic Pluripotent Stem Cells and Their Applications	9-10 am on 27 th Feb, 2024	https://forms.gle/WCAKofjiXfZpR9sB8
2	Dr. Supriya Bhattacharya Azrieli Faculty of Medicine in the Galilee Bar-Ilan University Henrietta Szold 8, room D102 Safed, Israel	CRISPR/dCAS9 assay for identification of directionality of protein recruitment in cells	2:15-3:15 PM 27 th Feb, 2024	https://forms.gle/7s9ipPy7Fk3ihUEk9
3	Dr. Majid Ebrahimi Warkiani, School of Biomedical Engineering, UTS, Australia Director Microfluidic & Tissue Engineering Laboratory Center for Health Technologies (CHT) & Institute for Biomedical Materials & Devices (IBMD),	Microfluidic Systems for Cell Biology and Translation into Practice	9:30-10:30 am 28 th Feb, 2024	https://forms.gle/H51pUjcV3shw5v1WA
4	Dr. Micha Drukker Professor of Stem Cells, Developmental Biology, and	Stem Cells as Agents for Species Revival	9-10 am 29 th Feb, 2024 [9:00- 10:00	https://forms.gle/m4FBBhs7ECx1xpJAA

	Technology for Innovative Drug Research Leiden Academic Centre for Drug Research University of Leiden, Netherlands		am	
5	Dr. Ratan K. Choudhary Department of Bioinformatics, College of Animal Biotechnology, Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana-141004	Mammary Stem Cells	2:15-3:15 PM 28 th Feb, 2024	https://forms.gle/QyXXQHGq4htmP8Dc6
6	Dr. Arnab Ghosh, University of New Castle, New castle, Australia	Unleashing the potential of Stem Cells and Stem cell-derived Organoids in Gynecological Cancer Research	9:30-10:30 am 1 st March, 2024	https://forms.gle/7PbeA6sFXhd7spn59
7	Dr. Barak Blum Cell and Regenerative Biology Stem Cell and Regenerative Medicine Center, University of Wisconsin Madison, USA	Pancreas development and regeneration	9-10 am Monday, 4 th March, 2024	https://forms.gle/aerNWwJf7FsvFmMa6
8	Dr. Meir Shamay Daniella Lee Casper Laboratory in Viral Oncology Azrieli Faculty of Medicine in the Galilee Bar-Ilan University Henrietta Szold 8, room D102 Safed, Israel	Oncovirus manipulating endogenous transposable elements to promote tumor growth	4:30 -5:30 PM, 4 th March, 2024	https://forms.gle/D1RKpPrYFBhyW2DF6
9	Dr. Cerys Manning Presidential Fellow (Research),	Modelling developmental eye	4-5 PM 5 th March,	https://forms.gle/t2tm4DDrkv4xBNvJ8

	Division of Developmental Biology & Medicine (L5) Michael Smith Building, University of Manchester, UK	disorders in human retinal organoids	2024	
10	Dr. Megha Agarwal Department of Pediatrics Cardiology Stanford University, Stanford, CA, USA	Stem Cells in Skeletal Muscle Development, Regeneration and Congenital Heart Disease	9:30- 10:30 am 6 th March, 2024	https://forms.gle/zC6aYcsNU1AGJ6oi6

SERB SPONSORED WORKSHOP ON
**BASIC TECHNIQUES
FOR STEM CELL
RESEARCH**

(FEB 26- MAR 6, 2024)

SPEAKER



DR. JUN WU

Department of Molecular Biology
UT Southwestern Medical Center
Dallas, TX 75390-9148, USA

TOPIC

**DYNAMIC PLURIPOTENT
STEM CELLS AND THEIR
APPLICATIONS**

REGISTRATION OPEN

<https://forms.gle/WCAKofjiXfZpR9sB8>

TIME

**WEDNESDAY •
FEB 27, 2024
9:00-10:00 AM**

**Live streaming at
[https://www.youtube.com/
@IVRIIzatnagar1](https://www.youtube.com/@IVRIIzatnagar1)**

UT Southwestern
Medical Center



SERB SPONSORED WORKSHOP ON
**BASIC TECHNIQUES
FOR STEM CELL
RESEARCH**

(FEB 26- MAR 6, 2024)

SPEAKER



DR. SUPRIYA BHATTACHARYA

Azrieli Faculty of Medicine in the Galilee
Bar-Ilan University
Safed, Israel

TOPIC

**CRISPR/DCAS9 ASSAY FOR
IDENTIFICATION OF
DIRECTIONALITY OF
PROTEIN RECRUITMENT IN
CELLS**

REGISTRATION OPEN

<https://forms.gle/7s9ipPy7Fk3ihUEk9>

TIME

**WEDNESDAY
FEB 27, 2024
2:15-3:15 PM**

**Live streaming at
[https://www.youtube.com/
@IVRilzatnagar1](https://www.youtube.com/@IVRilzatnagar1)**



The Azrieli
Faculty of Medicine
Bar-Ilan University



SERB SPONSORED WORKSHOP ON
**BASIC TECHNIQUES
FOR STEM CELL
RESEARCH**

(FEB 26- MAR 6, 2024)

SPEAKER



DR. MAJID E. WARKIANI

School of Biomedical Engineering,
University of Technology Sydney (UTS),
Australia

TOPIC

**MICROFLUIDIC SYSTEMS
FOR CELL BIOLOGY AND
TRANSLATION INTO
PRACTICE**

REGISTRATION OPEN

[https://forms.gle/
H51pUjcV3shw5v1WA](https://forms.gle/H51pUjcV3shw5v1WA)

TIME

WEDNESDAY

FEB 28, 2024

9:30-10:30 AM

Live streaming at

**[https://www.youtube.com/
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SERB SPONSORED WORKSHOP ON
**BASIC TECHNIQUES
FOR STEM CELL
RESEARCH**

(FEB 26- MAR 6, 2024)

SPEAKER



DR. MICHA DRUKKER
UNIVERSITY OF LEIDEN,
NETHERLANDS

TOPIC

**STEM CELLS AS AGENTS
FOR SPECIES REVIVAL**

REGISTRATION OPEN

[https://forms.gle/
iHLY8pPWpCYhXbhm6](https://forms.gle/iHLY8pPWpCYhXbhm6)

TIME

**THURSDAY •
FEB 29, 2024
9:00-10:00 AM
Live streaming at
[https://www.youtube.com/
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**Universiteit
Leiden**
The Netherlands



ACCELERATE
vigyan



SERB SPONSORED WORKSHOP ON
**BASIC TECHNIQUES
FOR STEM CELL
RESEARCH**
(FEB 26- MAR 6, 2024)

SPEAKER



DR. RATAN K. CHOUDHARY

Department of Bioinformatics,
College of Animal Biotechnology,
Guru Angad Dev Veterinary and Animal
Sciences University, Ludhiana-141004

TOPIC

MAMMARY STEM CELLS

TIME

WEDNESDAY •

FEB 28, 2024

2:15PM-3:15PM

Live streaming at

<https://www.youtube.com/>

[@IVRllzatnagar1](https://www.youtube.com/@IVRllzatnagar1)

REGISTRATION OPEN

<https://forms.gle/QyXXQHgq4htmlP8Dc6>



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SERB SPONSORED WORKSHOP ON
**BASIC TECHNIQUES
FOR STEM CELL
RESEARCH**
(FEB 26- MAR 6, 2024)

SPEAKER



DR. ARNAB GHOSH

**CANCER INSTITUTE NSW FELLOW
CENTRE OF DRUG REPURPOSING AND
MEDICINE RESEARCH PROGRAM, HUNTER
MEDICAL RESEARCH INSTITUTE, AUSTRALIA
SCHOOL OF BIOMEDICAL SCIENCES &
PHARMACY
UNIVERSITY OF NEWCASTLE,
AUSTRALIA**

TOPIC

**UNLEASHING THE
POTENTIAL OF STEM CELLS
AND STEM CELL-DERIVED
ORGANOIDS IN
GYNAECOLOGICAL
CANCER RESEARCH**

TIME

**FRIDAY • March 1, 2024
9:30-10:30 AM
Live streaming at
[https://www.youtube.com/
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REGISTER AT:

**[https://forms.gle/
7PbeA6sFXhd7spn59](https://forms.gle/7PbeA6sFXhd7spn59)**



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SERB SPONSORED WORKSHOP ON
**BASIC TECHNIQUES
FOR STEM CELL
RESEARCH**
(FEB 26- MAR 6, 2024)

SPEAKER



DR. BARAK BLUM
**STEM CELL & REGENERATIVE
MEDICINE CENTER**
UNIVERSITY OF WISCONSIN, MD, USA

TOPIC

**PANCREAS
DEVELOPMENT AND
REGENERATION**

REGISTRATION OPEN

[https://forms.gle/
aerNWwJf7FsvFmMa6](https://forms.gle/aerNWwJf7FsvFmMa6)

TIME

FRIDAY • March 4, 2024
9:00-10:00 AM
Live streaming at
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SERB SPONSORED WORKSHOP ON
**BASIC TECHNIQUES
FOR STEM CELL
RESEARCH**

(FEB 26- MAR 6, 2024)

SPEAKER



DR. MEIR SHAMAY
AZRIELI FACULTY OF MEDICINE
IN THE GALILEE
BAR ILAN UNIVERSITY
SAFED, ISRAEL

TOPIC

**ONCOVIRUS MANIPULATING
ENDOGENOUS
TRANSPOSABLE ELEMENTS
TO PROMOTE TUMOR
GROWTH**

REGISTRATION OPEN

[https://forms.gle/
D1RKpPrYFBhyW2DF6](https://forms.gle/D1RKpPrYFBhyW2DF6)

TIME

**MONDAY • March 4,
2024**

4:30-5:30 AM

**Live streaming at
[https://www.youtube.com/
@IVRllzatnagar1](https://www.youtube.com/@IVRllzatnagar1)**



The Azrieli
Faculty of Medicine
Bar-Ilan University



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SERB SPONSORED WORKSHOP ON
**BASIC TECHNIQUES
FOR STEM CELL
RESEARCH**

(FEB 26- MAR 6, 2024)

SPEAKER



DR. CERYS MANNING
Division of Developmental
Biology & Medicine
University of Manchester,
Manchester, UK

TOPIC

**MODELLING
DEVELOPMENTAL EYE
DISORDERS IN HUMAN
RETINAL ORGANIDS**

REGISTRATION OPEN

[https://forms.gle/
t2tm4DDrkv4xBNvJ8](https://forms.gle/t2tm4DDrkv4xBNvJ8)

TIME

**TUESDAY·
March 5, 2024
4:00-5:00 PM**

**Live streaming at
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SERB SPONSORED WORKSHOP ON
**BASIC TECHNIQUES
FOR STEM CELL
RESEARCH**

(FEB 26- MAR 6, 2024)

SPEAKER



DR. MEGHA AGARWAL

Department of Pediatrics Cardiology
Stanford University,
Stanford, CA, USA

TOPIC

STEM CELLS IN SKELETAL
MUSCLE DEVELOPMENT,
REGENERATION AND
CONGENITAL HEART
DISEASE

REGISTRATION OPEN

[https://forms.gle/
qYS5AT6bDqjWmzkF7](https://forms.gle/qYS5AT6bDqjWmzkF7)

TIME

WEDNESDAY • March 6,
2024

9:30-10:30 AM

Live streaming at
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