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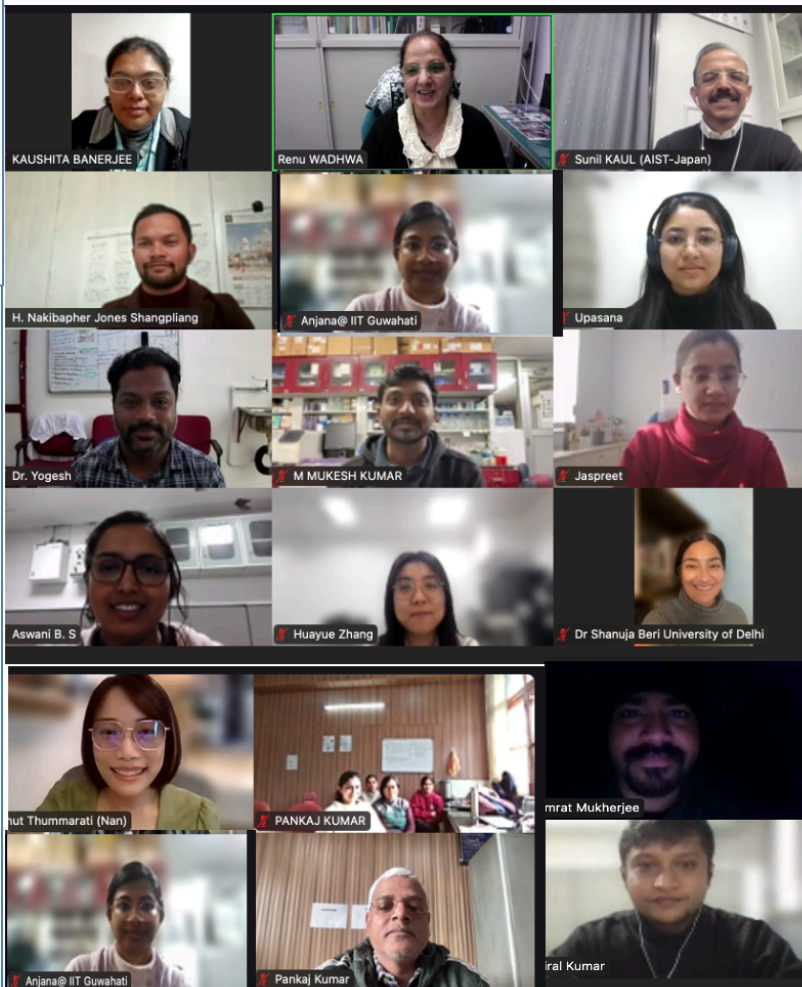
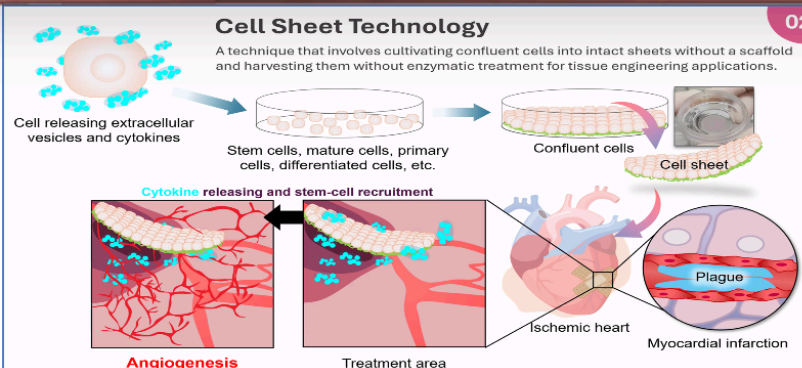
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CMBRI Seminar Series FY2024-07

Parichut Thummarati
2024-12-18



Series - 97

Date and Time - 18 December 2024 (4:30 PM JST | 1:00 PM IST)

Venue - Zoom

Speaker - Parichut Thummarati

Affiliation - Department of Clinical Chemistry, Faculty of Allied Health Sciences, Chulalongkorn University, Thailand

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Advancements and Applications of Cell Sheet Engineering: From Scaffold-Free Tissue Fabrication to Clinical Translation

Cell sheet engineering is a scaffold-free tissue fabrication technique that utilizes the natural assembly of cells through cell-cell junctions and extracellular matrix (ECM) proteins. In this approach, cells are cultured to confluence on surfaces coated with poly-N-isopropylacrylamide (PIPAAM), a temperature-responsive polymer. PIPAAM undergoes a reversible transition between hydrophobic and hydrophilic states, enabling the non-enzymatic harvesting of intact cell sheets. These sheets retain ECM and membrane proteins, making them suitable for stacking into three-dimensional tissues for various biomedical applications. This technology has shown significant potential in regenerative medicine and biological modeling. This seminar will highlight examples of cell sheet engineering in cardiac muscle cell sheets for autologous transplantation in myocardial infarction. Recent studies have identified strategies to maintain angiogenic cytokine balance within cell sheets, promoting angiogenesis and improving therapeutic outcomes. Additionally, cell sheet engineering has been applied to create three-dimensional models for biological research, enhancing our understanding of disease mechanisms. We will discuss the latest advancements in materials, cell sources, and fabrication techniques that have expanded the functionality of cell sheets. The seminar will also include the clinical translation of this technology, focusing on studies that demonstrate improved therapeutic efficacy and its applications in biological modeling.

58 Participants
Thanks Everyone!

RW	Renu WADHWA (Host, me)		
	Parichut Thummarati (Nan)		
AR	Aakriti Rai (Sikkim University)		
	Anjana@ IIT Guwahati		
A	Anup		
AB	Aswani B. S		
AK	Aviral Kumar		
B	Bharathwaj		
DY	Dr. Yogesh		
HN	H. Nakibapher Jones Shangpliang		
HZ	Huayue Zhang		
	KAUSHITA BANERJEE		
	M MUKESH KUMAR		
P	Pampita		
PK	Pankaj Kumar		
PK	PANKAJ KUMAR		
pb	pisa beni		
	priyambada pariyar		
S	Sosmitha		
SK	Sunil KAUL (AIST-Japan)		
TI	Taichi Ikeda		
U	Upasana		
U	Uzini		
BB	Bintee B		
SS	Shweta Shinde		