Science Setu Webinars by NIPGR

"Understanding role of sugar signal transduction in regulating plant growth development and stress responses"

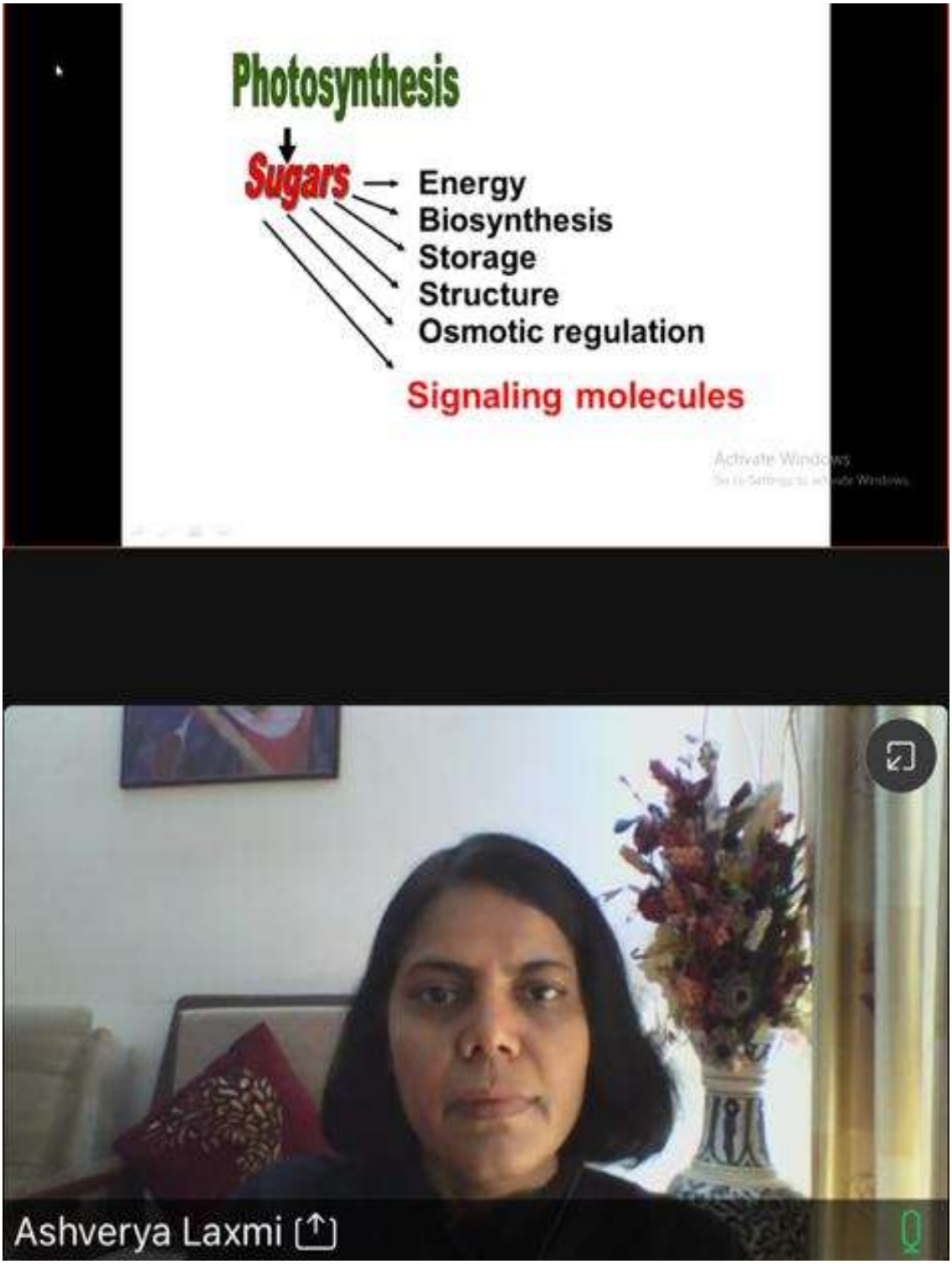
Press- Note

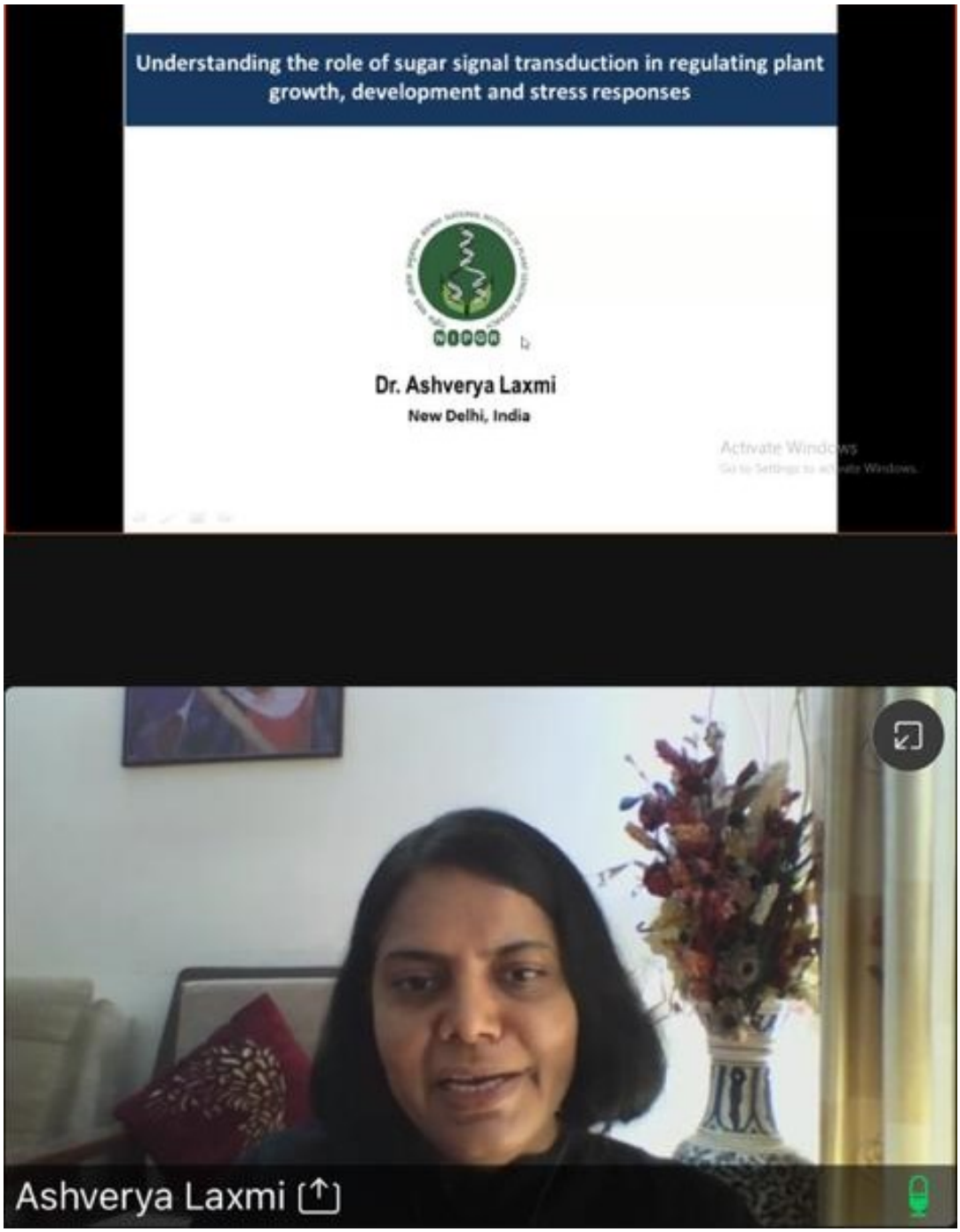
Date:09-07-2021, Friday

Resource person: Dr. Ashverya Laxmi, Scientist V, NIPGR

The Department of Biotechnology, Government of India, has planned "Science Setu" as a virtual platform to connect research Institutes with undergraduate students. Under this, our college has been assigned to National Institute of Plant Genome Research (NIPGR), New Delhi. NIPGR is an autonomous institution aided by the Department of Biotechnology. Research at NIPGR focuses on functional, structural, evolutionary and applied genomics of plants, including crop plants. Through the Science Setu program, our students and faculty virtually connect with NIPGR, New Delhi and got to know about the multifarious kinds of plant based research. It is a unique opportunity for science students at undergraduate level to get an exposure to high-level research.

Dr. Pinky Agarwal, Scientist, NIPGR gave welcome note on this event. **Resource person: Dr. Ashverya Laxmi, Scientist V, NIPGR** started her lecture by giving an introduction and physiological role of sugar molecules.Sheemphasized on the role of sugar signal transduction in regulating plant growth, development and stress responses. She started her talk with an example of AtHXK1 mutant lines, in which AtHXK1 overexpression lines are hypersensitive while antisense expression lines are hyposensitive towards glucose. In addition, she discussed about her research on how glucose regulates many aspects of early seedling root growth and development in *Arabidopsis thaliana*. Further, she explained the role of glucose in acquired thermotolerance, SnRKs, flz6, flz10 mutants and regulating mechanism behind stress responses. Her webinar was very resourceful. Faculty of Science and total 7science students attended the event. Dr. Pinky Agarwal, Scientist, NIPGR attended the questions of the participants and gave vote of thanks. It was an intellectual and exciting experience for all the participants.


Photosynthesis
Sugars
Energy
Biosynthesis
Storage
Structure
Osmotic regulation
Signaling molecules
Activate Windows
Ashverya Laxmi


Understanding the role of sugar signal transduction in regulating plant growth, development and stress responses
Dr. Ashverya Laxmi
New Delhi, India
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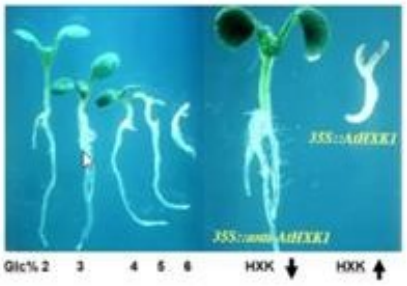
Ashverya Laxmi

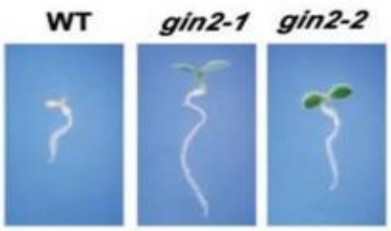
AtHXK1 overexpression lines are hypersensitive while antisense expression lines are hyposensitive towards glucose



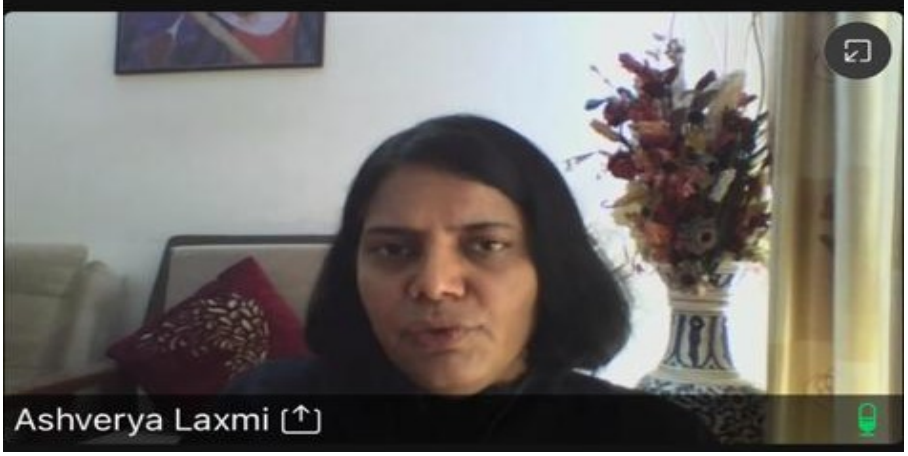
Overexpression- **Hypersensitive**
Antisense expression- **Hyposensitive**

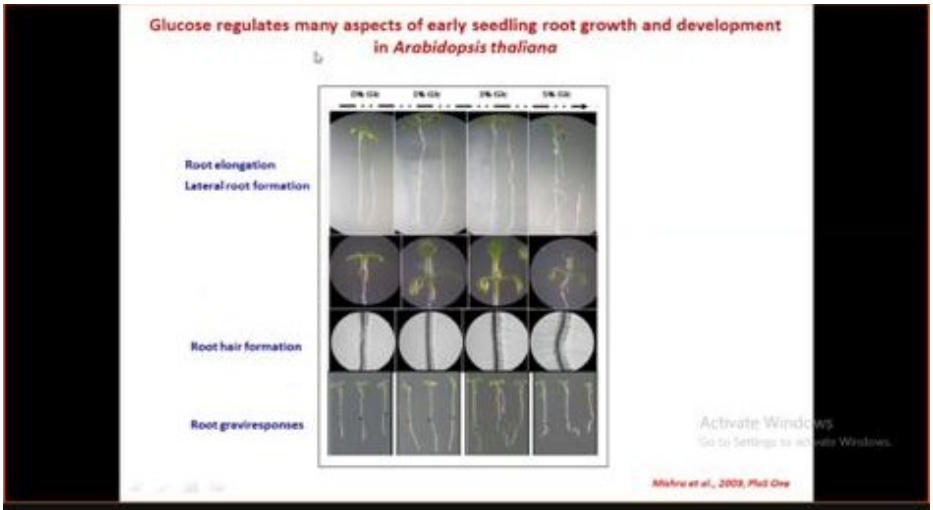
Jang and Sheen, 2003

AtHXK1 mutant lines are more resistant towards glucose



Moore et al., 2003




Glucose regulates many aspects of early seedling root growth and development in Arabidopsis thaliana
Root elongation
Lateral root formation
Root hair formation
Root gravireponses
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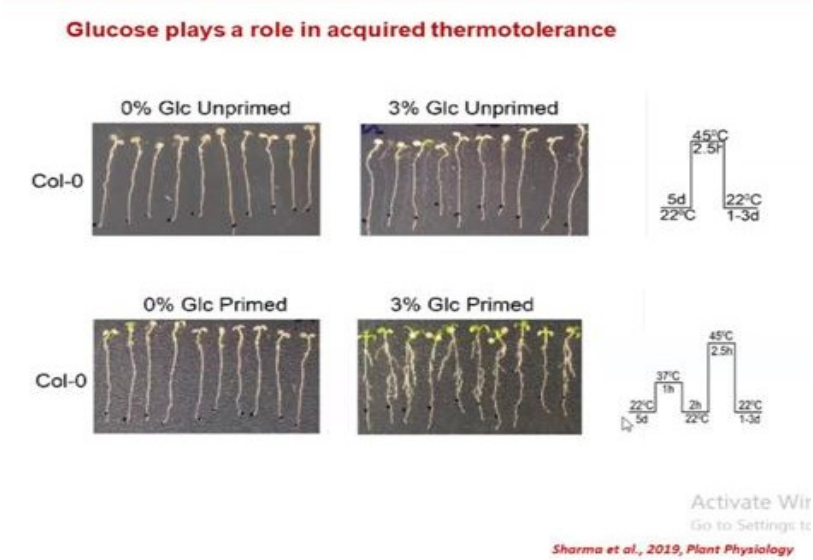
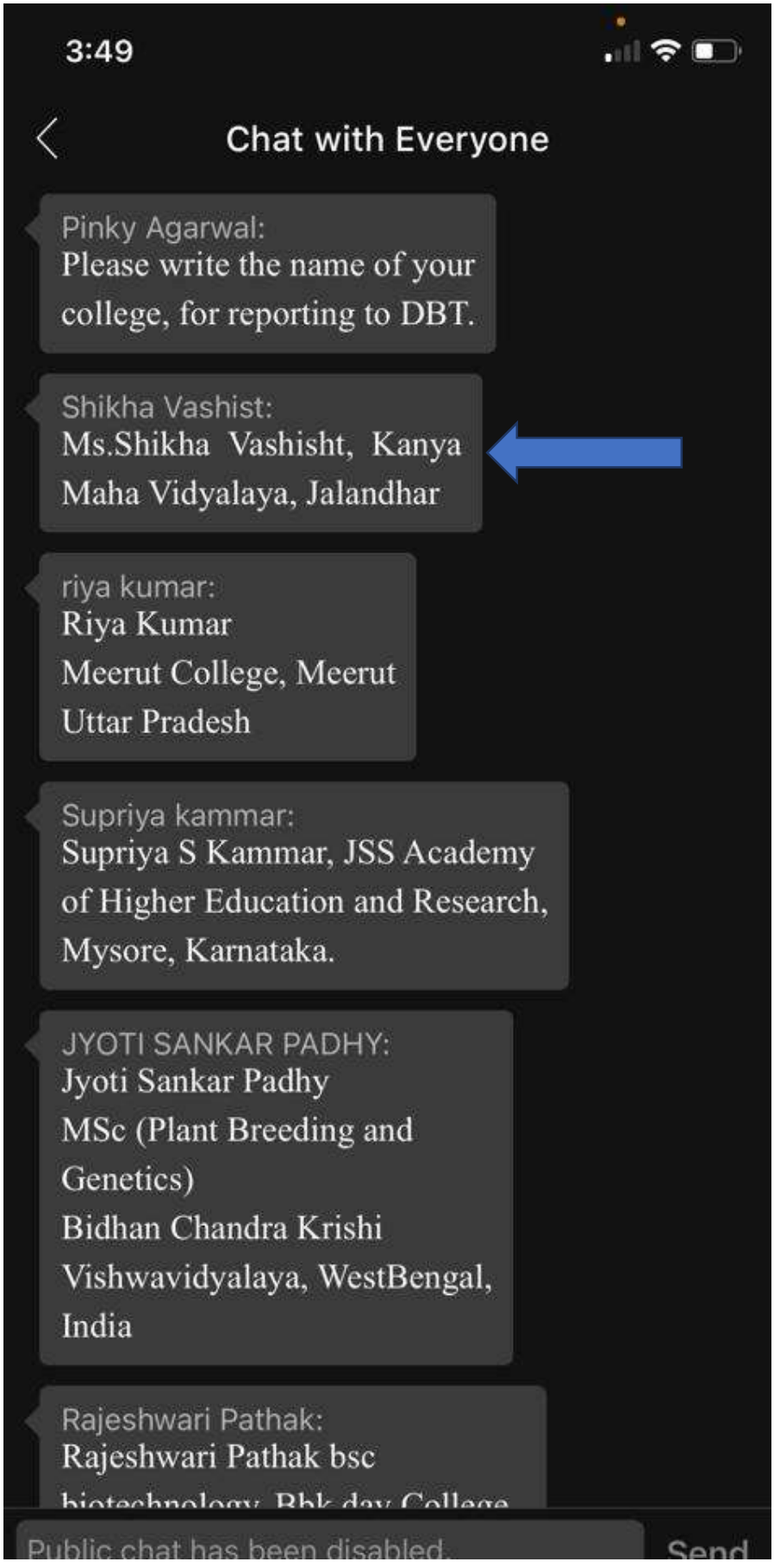
Mishra et al., 2009, PloS One


Ashverya Laxmi


Glucose plays a role in acquired thermotolerance
0% Glc Unprimed
3% Glc Unprimed
Col-0
45°C
2.5h
5d
22°C
22°C
1-3d
0% Glc Primed
3% Glc Primed
Col-0
45°C
2.5h
37°C
1h
22°C
5d
2h
22°C
22°C
1-3d
Activate Wir
Sharma et al., 2019, Plant Physiology


3:49
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Uttar Pradesh
Supriya kammar:
Supriya S Kammar, JSS Academy of Higher Education and Research, Mysore, Karnataka.
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Jyoti Sankar Padhy
MSc (Plant Breeding and Genetics)
Bidhan Chandra Krishi Vishwavidyalaya, WestBengal, India
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Rajeshwari Pathak bsc
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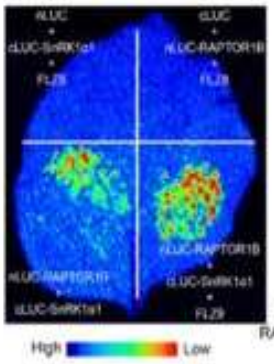
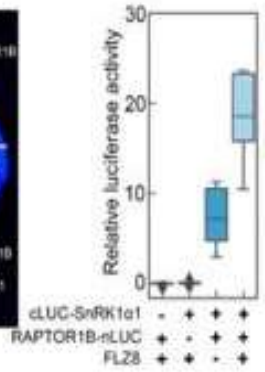
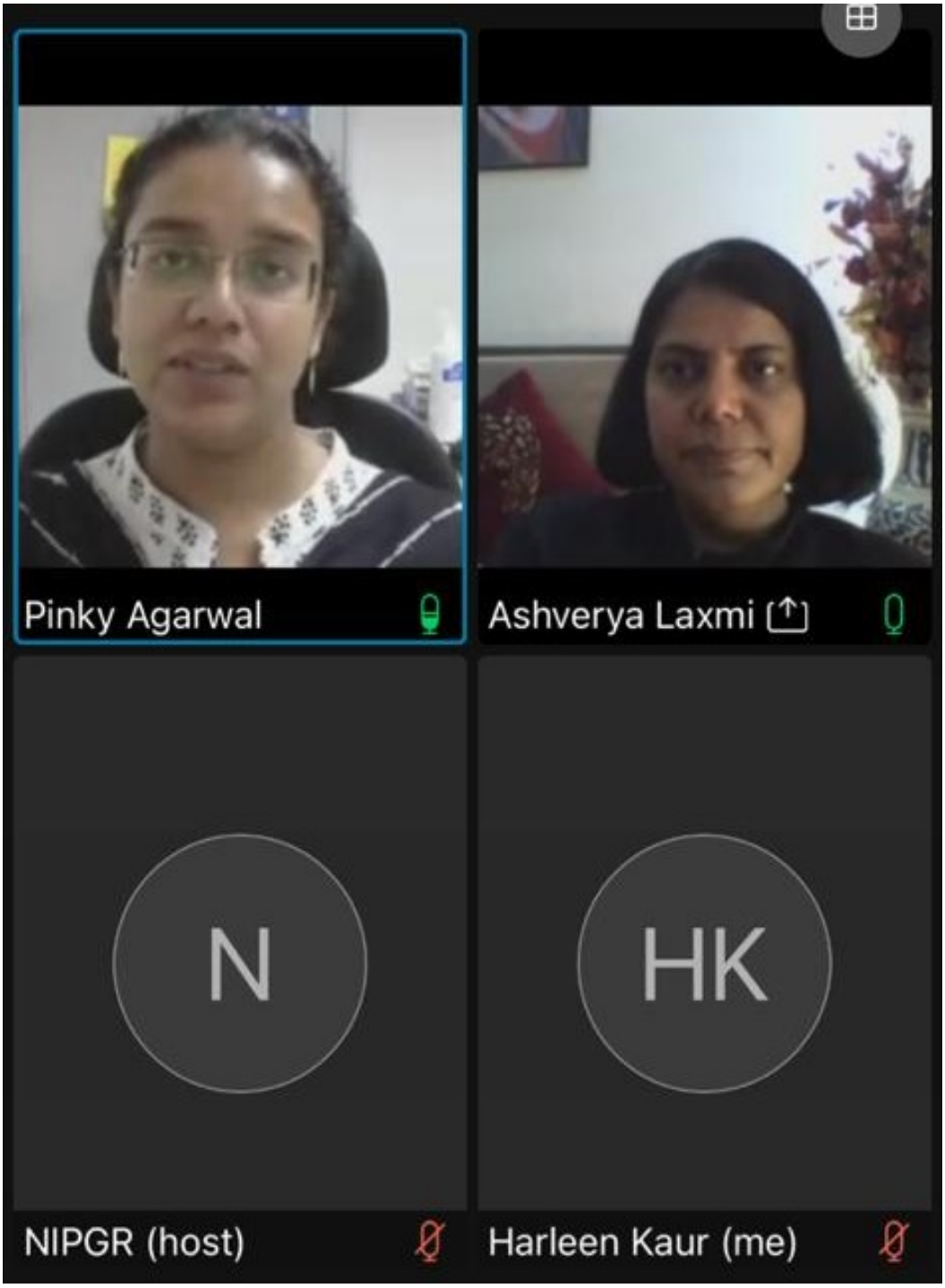
FLZ8 bridges the interaction of SnRK1α1 with RAPTOR1B






Pinky Agarwal
Ashverya Laxmi
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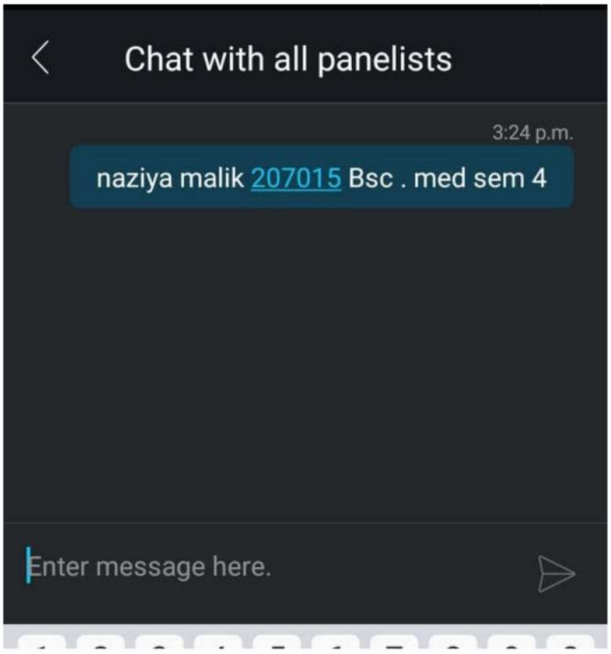
HK
NIPGR (host)
Harleen Kaur (me)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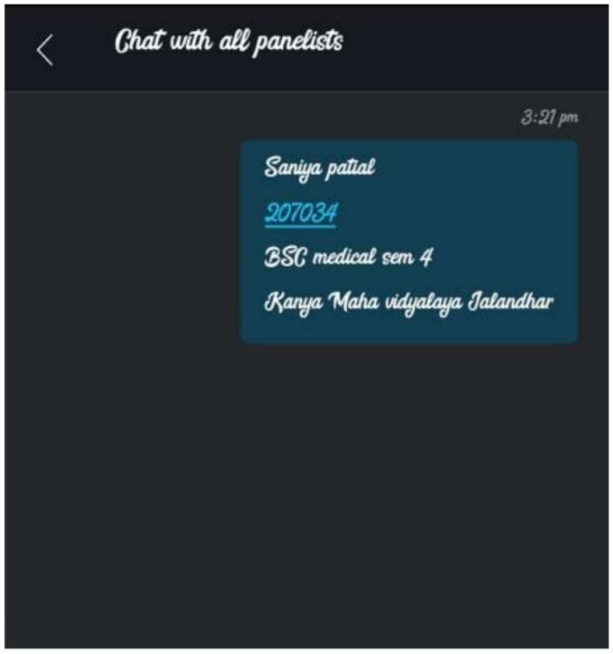
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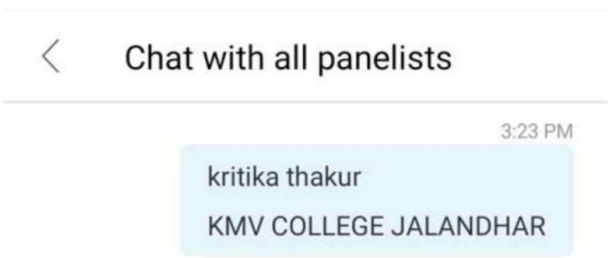
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