



PRESENTS

Special Session on

Sickle Cell Disease

"A Journey from Diagnostics to CRISPR Therapy"

September 29, 04:00 pm IST

Presenters from Dr. Debojyoti Chakraborty's Lab,
CSIR-IGIB, New Delhi:

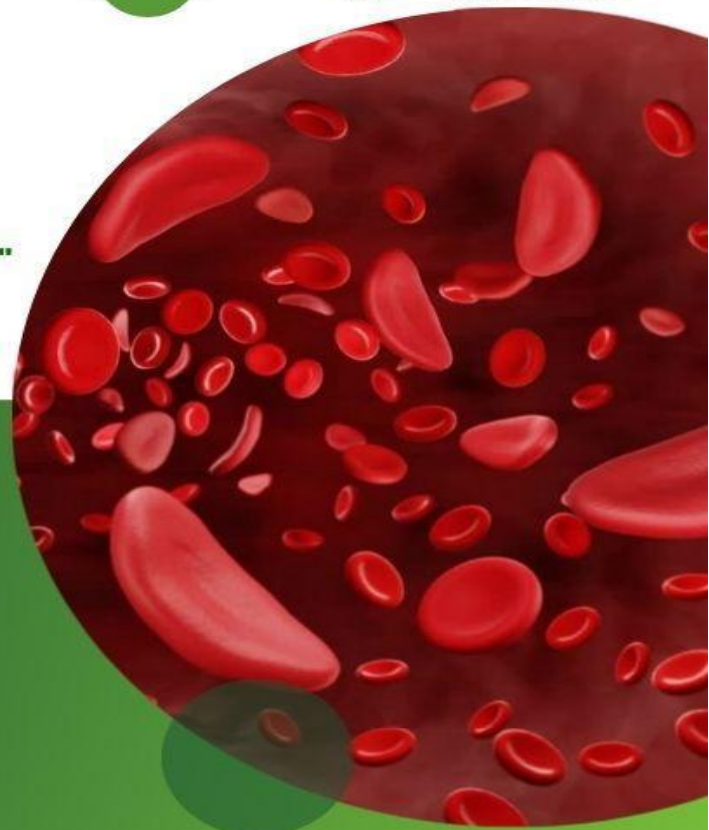
- ▶ Ms. Rhythm Phutela, PhD Scholar
- ▶ Ms. Meghali Aich, PhD Scholar
- ▶ Ms. Kanikah Mehndiratta, Project Associate

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FOR class 5th-12th STUDENTS



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KNOWLEDGE AND AWARENESS MAPPING PLATFORM

KNOWLEDGE SESSION 2022: EPISODE 12

ORGANISED BY: KNOWLEDGE AND AWARENESS MAPPING PLATFORM

National Institute of Science Communication and Policy Research
NIScPR
सीएसआईआर-निसपर

Date: 29th September 2022

Organised For: Class 5th – 12th

A KNOWLEDGE ALLIANCE OF
Topic: Sickle Cell Disease

Category: Science



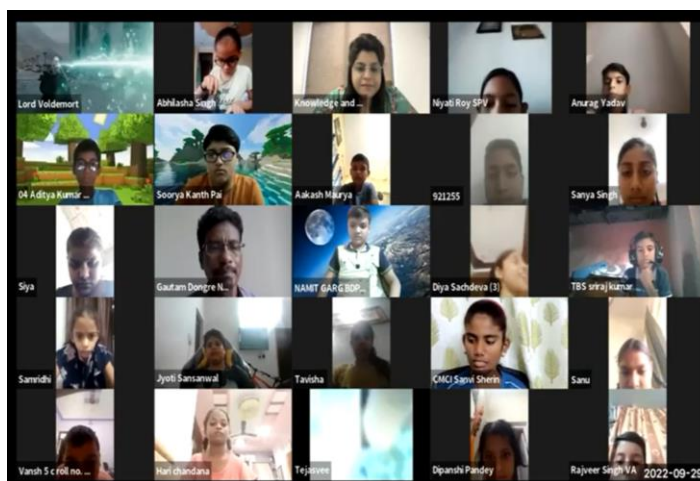
No. of Participants: 600+ students from different schools across India

Speakers/Presenters: Ms. Rhythm Phutela (PhD Scholar), Ms. Meghali Aich (PhD Scholar), Ms. Kanikah Mehndiratta (Project Associate) and Mr. Gautam Dongre (Secretary - NASCO, Board Member - GASCDO).

Overview:

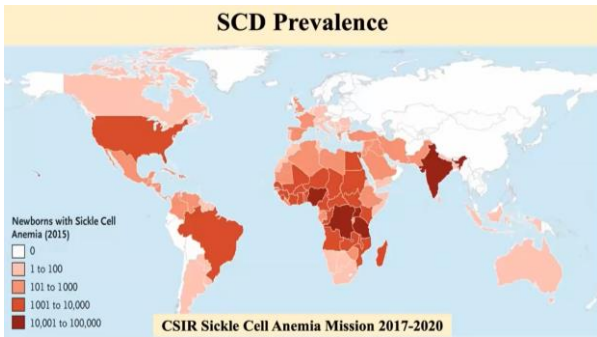
On September 29th, KAMP conducted its 12th Special Workshop on "Sickle Cell Disease; A Journey from Diagnostics to CRISPR Therapy" with 600+ students from 5th to 12th standard from different schools across India as participants. This workshop aimed to help the students become aware of what Sickle Cell Disease is. How is it diagnosed? What is its prevalence in India? How can it be treated? What are the types of sickle cell disease? as well as provide real-life examples with an understanding of the ground-level situation.

The session was convened by Ms. Arika Mathur, a member of KAMP Planning & Monitoring Committee. It was facilitated by Ms. Rhythm Phutela (PhD Scholar), Ms. Meghali Aich (PhD Scholar), Ms. Kanikah Mehndiratta (Project Associate), all from Dr. Debojyoti Chakraborty's Lab, CSIR-IGIB, New Delhi, and Mr. Gautam Dongre (Secretary-NASCO, Board Member-GASCDO).



Mr. Gautam's son, Girish, suffers from Sickle Cell Anemia himself. Seeing him in severe pain, Mr. Gautam decided to spread awareness to prevent its occurrence through his services via the National Alliance of Sickle Cell Organizations (NASCO), which itself involves the Sickle Cell Societies from every state in India.

Sickle Cell is one of the most common monogenic disorders in the world and has a very high prevalence in the Indian population, especially amongst the tribal population. mainly due to lack of resources, lack of medication, and lack of awareness, resulting in severe pain, which causes



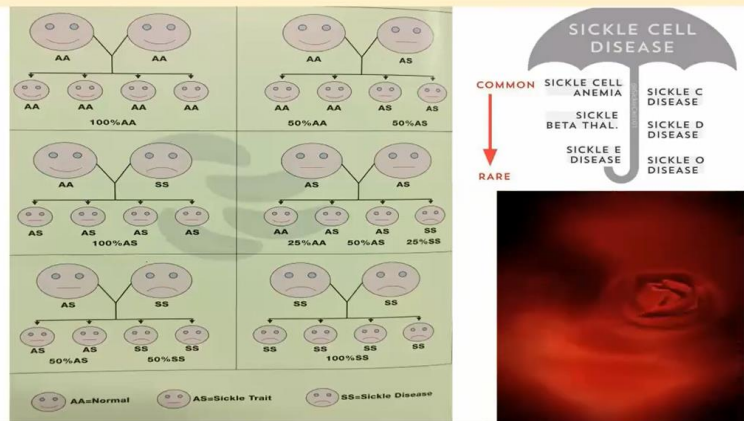
serious organ damage and may even take the patient's life. There are more than 15 lakh sickle cell patients in India alone.

Sickle Cell is an autosomal recessive disorder, which means that you need to have both mutated alleles to have the condition. Otherwise, it would just be called a sickle cell trait. So, for it to occur, both parents must be

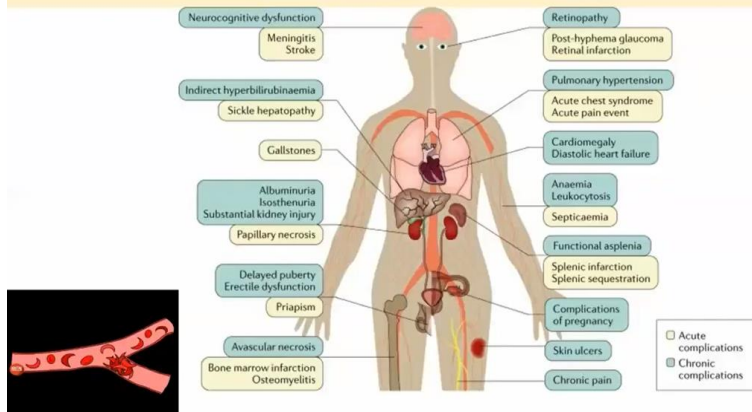
carriers of this trait and thus pass it on to their offspring.

Unfortunately, there is no permanent treatment for this disease, and it cannot be cured completely. However, bone marrow transplants or some medicines have been found to decrease the severity of the symptoms to some extent, but not cure them completely. The most common symptoms are meningitis, stroke, acute chest syndrome, gallstones that develop priapism, septicaemia, or chronic complications like neurocognitive dysfunction, retinopathies, pulmonary hypertension, chronic pain, delayed puberty, or even erectile dysfunction.

SCD Inheritance



SCD Pathophysiology

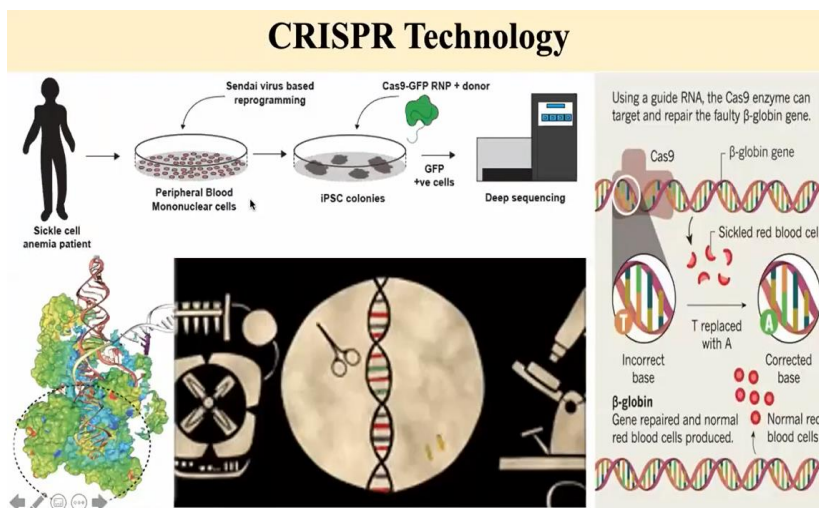


The most common treatment method is the Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR) technology. It is the most abundant genome engineering or gene editing tool. It is an adaptive immune system that we have adapted from the bacterial system and can now be used for any organism as such.

The purpose of KAMP's fortnightly workshops is to help students develop creativity, meaningful learning, and critical reading and thinking skills that bring out their inherent abilities. The vision of KAMP is to identify and capture scientific and technological temperament in students to make India a global leader in the field of Science, Technology and Humanities. Such workshops, conducted by KAMP, deal with

various topics that fall under the categories of Science, Technology, and Innovations; Scientific and Life Skills; Career & Professional Development; Academic Development; and Train the Trainers/Teachers.

KAMP believes that with exposure to such topics from experts within such specific fields, students will become aware of real-life situations and challenges, develop a helping, problem-solving nature wherever possible, understand their core values and personal interests, evaluate their skills within the given area, and achieve their best in their most desirable way.



Organised By:
Knowledge and Awareness Mapping Platform
 (KAMP Operations and Coordination Office)

Moderated By:
Ms. Arika Mathur
 (Convener KAMP and Member KPMC)

Team Credits:
Mr. Amit Kumar Shukla
 (Head-Capacity Building Group, KAMP)

Ms. Vishakha Gola
 (Sr. Coordinator KAMP)

Workshop Partner: CSIR-IGIB

