



A Report

on

Webinar ON



"Genetics in Cancer and Its Therapy"

Aug. 1, 2020 (Saturday), 4:00 pm

Speaker:

Prof. Rajiv Sarin

Tata Memorial Centre, Mumbai

Organized by

Society for Radiation Research (SRR)

(Registration No.: Maharashtra State, Mumbai 2280, 2014 GBBSD)

Registered Office: Advanced Centre for Radiation Oncology

Dr Balabhai Nanavati Hospital, Vile Parle (W), Mumbai 400 056, India

Email: srrindia1415@gmail.com

Web page: www.srrindia.org

The Society of Radiation Research (SRR) organized a webinar on “**Genetics in Cancer and Its Therapy**” on Aug. 1, 2020 (Saturday) 4:00 pm Speaker: Prof. Rajiv Sarin, Tata Memorial Centre, Mumbai. Due to huge response from the audience/online registration (more than 300 from India/abroad), the Webinar was made Live on YouTube, which was co-ordinated by **Ms Pooja Melwani**, Scientific Officer, Radiation Signalling and Cancer Biology Section, Radiation Biology & Health Sciences Division, BARC, Mumbai.

Dr Shyam Kishore Shrivastava, President, SRR, Ex-Head, Department of Radiation Oncology, Tata Memorial Hospital, Mumbai & Director, Radiation Oncology, Appollo Hospitals, Navi Mumbai delivered welcome address to audience, who joined from different parts of India and abroad.

Dr K. P. Mishra, Founder President, SRR, Ex-Head, RB&HSD, BARC, Mumbai, Ex-VC, Nehru Gram Bharati University, Allahabad highlighted about SRR and its activities. He mentioned about objectives of SRR and various scientific activities conducted/organized by SRR to promote radiation research in young scientists and students.

Afterwards **Dr Rajiv Sarin**, Tata Memorial Centre, Mumbai delivered webinar on “**Genetics in Cancer and its Therapy**”. The scientific session was chaired by **Prof. Vijay K. Singh**, Armed Forces Radiobiology Research Institute, Uniformed Services University of the Health Sciences, USA. While introducing Dr Sarin, Dr Singh highlighted the great contributions of Dr Sarin in the area of clinical cancer genetics. Dr Sarin explained about environment-gene interaction in deciding the organism phenotype. He mentioned and given example of high penetrance genes like p53, BRCA, Rb with high life time risk of cancer and low penetrance genes like GST, CYP with low risk of cancer. Dr Sarin explained about two-hit hypothesis for hereditary and sporadic retinoblastoma cancer in children. He also mentioned about steps, legal aspects, myths and complications of genetic counselling. The lucid talk of Dr Sarin followed intense question and answer session with active participation by the audience.

Dr B. N. Pandey, Secretary, SRR & Head, Radiation Signalling and Cancer Biology Section, Radiation Biology & Health Sciences Division, BARC, Mumbai given **mementos** to Dr Sarin and Dr Singh.

The webinar was ended with concluding remarks and vote of thanks of **Dr Nagraj Huilgol**, Ex-President, SRR, Chief Radiation Oncology, Advanced Centre for Radiation Oncology, Nanavati Hospital, Mumbai. Dr Huilgol thanked all SRR Members and participants (mainly young faculties and students) from India and abroad to join the meeting through YouTube. Dr Huilgol gave special thanks to Mr Deepak Naik, Mumbai who helped in E-certificate preparation and SRR website management. He also thanked Dr Prabodha Meher, Germany for finalizing brochure and help in managing SRR Facebook and Ms Pooja Melwani from BARC for co-ordinating and hosting the Webinar on YouTube.



Dr Shyam Shrivastava delivering welcome address



Dr K. P. Mishra addressing the audience



Dr V. K. Singh chairing the scientific session

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Genetic of Cancer & its Therapy

Prof. Rajiv Sarin, MD, FRCR (Clinical Oncology)
Professor Radiation Oncology & In-Charge Cancer Genetics Unit
TMH & ACTREC

drrajivsarin@gmail.com
rsarin@actrec.gov.in

Dr Rajiv Sarin delivering talk

Genetics in Cancer and Its Therapy

Variable penetrance (manifestation of phenotype)

High Penetrance genes: p53, BRCA, RB, RET
50-100% life time risk for Ca

Low Penetrance Genes (alleles or SNPs)-
GST, CYP, SULT
<20% life time risk for Carcinoma

Genetics in Cancer and Its Therapy

Knudson's two hit hypothesis explains **Early age; Multiple / Bilateral tumours & FH** in Hereditary Cancer due to Germline Mutations in Tum. Supp. Genes

R. Sarin
API Textbook of Medicine

SPORADIC

Both RB alleles normal at birth

1st HIT

Somatic Mutation in 1st RB allele acquired

2nd HIT

Somatic mutation in 2nd RB allele acquired

HEREDITARY

Germline Mutation in 1st RB allele present at birth

1st HIT

2nd HIT

RB develops after acquiring Somatic mutation in 2nd RB allele

RETINOBLASTOMA MODEL

As compared to sporadic RB, Hereditary RB often has FH & occurs at younger age, more commonly bilateral and multifocal.

Dr Rajiv Sarin delivering talk