

DIFFERENT FACES OF DNA REPAIR – NOBEL PRICE 2015 IN CHEMISTRY

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Summary

The Nobel Prize in chemistry for 2015 was awarded to Paul Modrich, Tomas Lindahl and Aziz Sancar for mechanistic studies on DNA repair. Paul Modrich works in Howard Hughes Medical Institute and Duke University School of Medicine, Durham, USA. The prize has been awarded for his work on Mismatch Repair, which removes mismatched nucleotides formed mainly during replication and is the “first line of defense” of genome stability. Tomas Lindahl is a professor of medical and physical chemistry, emeritus director of Cancer Research UK London Research Institute, Clare Hall Laboratories, South Mimms, United Kingdom. The Nobel Prize was awarded to him for discoveries on Base Excision Repair, which removes from the DNA small lesions, mainly alkylated and oxidatively formed damages. Aziz Sancar is a professor in biochemistry and biophysics at University of North Carolina School of Medicine, Chapel Hill, USA. He was awarded for the achievements on Nucleotide Excision Repair. The system removes from the DNA big lesions, such as pyrimidine dimers induced by ultraviolet light. Studies of these researchers made a basis for understanding of the evolution of living world as well as carcinogenic process and for elaboration of novel therapies.