

Joan Argentsinger Steitz (1941)

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One of the most relevant researchers in the field of RNA, Joan Steitz did pioneering work in the study of translation initiation, determining the sequences involved in translation initiation in a messenger RNA (mRNA), and showing that there is base pairing between 16S ribosomal RNA and mRNA at initiation. But mainly she is known for the discovery of small nuclear ribonucleoproteins (snRNPs) and their role in splicing.

Joan was born in Minneapolis. She studied chemistry at Antioch College (Ohio). Despite her interest in research, she decided to study medicine because she knew some women doctors but she did not know any women scientist or women science professors at major universities. However, the summer before going to Medical School at Harvard she returned to Minneapolis and found a summer job in Joe Gall's lab at the University of Minnesota. Gall recognized her talent and persuaded her to enter a doctoral program instead of studying medicine. She was admitted to the PhD program in Molecular Biology at Harvard University, where Joan was the only woman, and did her doctoral thesis under the supervision of James Watson.

After obtaining the PhD she moved to Cambridge, where she made her first major independent contribution, identifying the start sites of translation in the mRNA of a bacteriophage. Years later she showed that the ribosome binds to the site of initiation of translation by forming a helix between the 16S rRNA and the mRNA.

In 1970 Yale University offered her a job and at present she continues in the same University as Sterling Professor (the highest distinction at this university) of Molecular Biophysics and Biochemistry.

In 1979 her laboratory made the crucial discovery that the blood of patients with lupus, an autoimmune disease, contains antibodies that react with small nuclear ribonucleoproteins (snRNPs). These antibodies gave her tools necessary to demonstrate that snRNPs called U1, U2, U4, U5 and U6 are involved in the splicing mechanism. Her laboratory has been a reference in the elucidation of the mechanism for removal of introns and, for example, showed that snRNP U1 recognizes the 5' side of introns by forming a helix between the U1 RNA and the pre-mRNA. Other relevant contributions have been the discovery of snRNPs U11 and U12, which are part of an alternative mechanism involved in removing a minor subset of introns, and snoRNAs, involved in the modification of ribosomal RNA.

Joan Steitz is a member of the National Academy of Sciences of the United States, among other institutions, and has received numerous honorary doctorates and awards, including the National Cancer Institute's Rosalind E. Franklin Award for Women in Science, the Gairdner Foundation International Award and the Albany Medical Center Prize in Medicine and Biomedical Research in 2008, the best endowed prize in Medicine after the Nobel Prize.

Her laboratory continues to be highly productive in the field of RNA, consistently generating high impact publications.

<http://www.sebbm.es/>

HEMEROTECA: http://www.sebbm.es/ES/divulgacion-ciencia-para-todos_10/galeriamujeresyciencia_107

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