Editorial

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# Retroviruses Integrated their Own Genome into the Germ Line

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When retroviruses have integrated their very own genome into the germ line, their genome is passed directly to a following technology. These endogenous retroviruses (ERVs), contrasted with exogenous ones, now make up five-eight% of the human genome. most insertions have no recognized function and are regularly called "junk DNA". However, many endogenous retroviruses play crucial roles in host biology, which includes control of gene transcription, cellular fusion at some stage in placental development inside the direction of the germination of embryo, and resistance to exogenous retroviral an contamination. Endogenous retroviruses have additionally obtained special attention inside the studies of immunologyassociated pathologies, together with autoimmune sicknesses like multiple sclerosis, even though endogenous retroviruses have no longer but been validated to play any causal position on this class of sickness. Whilst transcription became classically idea to arise simplest from DNA to RNA, opposite transcriptase transcribes RNA into DNA. The time period "retro" in retrovirus refers to this reversal (making DNA from RNA) of the standard route of transcription. It nevertheless obeys the vital dogma of molecular biology, which states that records can be transferred from nucleic acid to nucleic acid but can't be transferred back from protein to either protein or nucleic acid. Opposite transcriptase pastime outdoor of retroviruses has been discovered in almost all eukaryotes, permitting the era and insertion of recent copies of retrotransposons into the host genome. These inserts are transcribed with the aid of enzymes of the host into new RNA molecules that input the cytosol. Next, a number of those RNA molecules are translated into viral proteins. The proteins encoded through the gag and pol genes are translated from genome-length mRNAs into Gag and Gag-Pol polyproteins. In example, for the gag gene; it's far translated into molecules of the capsid protein, and for the pol gene; it's miles translated into

molecules of reverse transcriptase. Retroviruses need plenty greater amount of the Gag proteins than the Pol proteins and have advanced superior structures to synthesize the specified amount of every. for example, after Gag synthesis nearly ninety five percent of the ribosomes terminate translation, even as other ribosomes keep translation to synthesize Gag–Pol. within the rough endoplasmic reticulum glycosylation starts and the env gene is translated from spliced mRNAs in the hard endoplasmic reticulum, into molecules of the envelope protein. while the envelope protein molecules are carried to the Golgi complicated, they're divided into floor glycoprotein and transmembrane glycoprotein by means of a bunch protease. those glycoprotein products stay in close affiliation, and they are transported to the plasma membrane after further glycosylation. It is essential to be aware that a retrovirus have to "convey" it's very own reverse.

For example, there is evidence that HIV emerged in humans after multiple independent zoonotic events involving crossspecies transmissions of simian immunodeficiency viruses (SIVs) from nonhuman primates. . Endogenous retroviruses have additionally obtained special attention inside the studies of immunology-associated pathologies, together with autoimmune sicknesses like multiple sclerosis, even though endogenous retroviruses have no longer but been validated to play any causal position on this class of sickness.

## ACKNOWLEDGEMENT

This research was supported by only Author contribution there is no other funding.

## CONFLICTS OF INTEREST

The authors declare that they have no conflict of interest.

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Received: May 04, 2021; Accepted: May 18, 2021; Published: May 25, 2021

Citation: Rodney W (2021) Retroviruses Integrated their Own Genome into the Germ Line. J Data Mining Genomics Proteomics. 12:e133

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