New Delhi, Nov 06: Although much progress has been made in developing a HIV-1 vaccine, a good immunogen (a molecule that stimulates our immune system to act against it) has still not been developed for the disease. So, what do we mean when we say good immunogen? A good immunogen is one that can elicit neutralizing antibodies efficiently in vaccines. Efficiently cleaved envelope proteins on the virus called Envs may increase the available Envs suitable for immunogen design and be studied further. Efficient cleavage of Env leads to mature, functional, native trimers that specifically display broadly neutralizing epitopes. Inefficient cleavage leads to aberrant, non-functional forms of Env that bind to non-neutralizing antibodies.

The enormous diversity of HIV-1 has impeded the selection of envelopes (Envs) suitable for designing vaccine immunogens. Tremendous progress has been made in developing soluble, trimeric, native-like Env proteins. But what scientists have struggled with is to narrow down to Env proteins with the ability to elicit neutralizing antibodies (Abs) in animal models, an essential qualification for beginning clinical trials. A better strategy to select naturally occurring Envs suitable for immunogen design by investigating how efficient cleavage is correlated with their selective binding to broadly neutralizing Abs (bNAbs) rather than non-neutralizing Abs (non-NAbs) will be useful.

In a review article, the team of researchers from Institute's Name:DBT- Translational Health Science and Technology Institute that is working on HIV vaccine development, have evaluated some of the challenges faced by researchers developing an effective HIV-1 vaccine. They have discussed the study of naturally occurring, membrane-bound, efficiently cleaved Envs and how they may positively add to the repertoire of HIV-1 Envs that can be used for vaccine immunogen design. The review was published earlier this month in Therapeutic Advances in Vaccines and Immunotherapy. The article was co-authored by Dr.
Supratik Das, Dr. Rajesh Kumar, Dr. Shubbir Ahmed, Dr. Hilal Ahmad Parray and Dr. Sweety Samal.

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