

## 'High hurdles' to overcome in HIV vaccine development

There are several '*high hurdles*' that need to be overcome before a safe and effective HIV vaccine can be developed, says Dr Barton F Haynes from Duke University AIDS Center, Durham, US.

These include the extreme variability of HIV and the rapidity and extent of HIV mutation, the possible need to consider a complex HLA-based HIV immunogen design, and the possible need for immunogens that induce antibodies that can neutralise HIV primary isolates. Therefore, future studies should focus on the envelope of HIV primary isolates as the target of neutralising antibodies, says Dr Haynes.

For successful vaccine development, it will also be important to conduct studies that define the presence and effectiveness of mucosal antiretroviral T and B cell responses following infection or vaccination with retroviral immunogens, says Dr Haynes.

Haynes BF. HIV vaccines: where we are and where we are going. *Lancet* 348: 933-937, 5 Oct 1996

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