Broadly Neutralizing Antibodies and HIV

Broadly neutralizing antibodies (bNAbs) block a wider range of HIV strains than other antibodies by targeting areas of the virus that are slower to mutate. This graphic depicts the bNAbs targeting key regions on HIV's spike protein - also known as the envelope (ENV) protein. These regions each play a role in HIV infection. The goal is to develop a product that harnesses the power of bNabs to prevent HIV, at scale, across an entire population. Antibodies listed in color are those that have been through any phase of clinical testing.

gp120-41 interface

Where gp120 and gp41 meet; involved in structural changes to the Env protein during entry into the host cell.

35022 LN02 SANC195
8ANC195 PGT151

gp41 MPER

Helps disrupt viral membrane during fusion of HIV with host cell.

MPER: Membrane-proximal external region

2F5 4E10 10E8VLS 10E8.4

gp120 Silent face

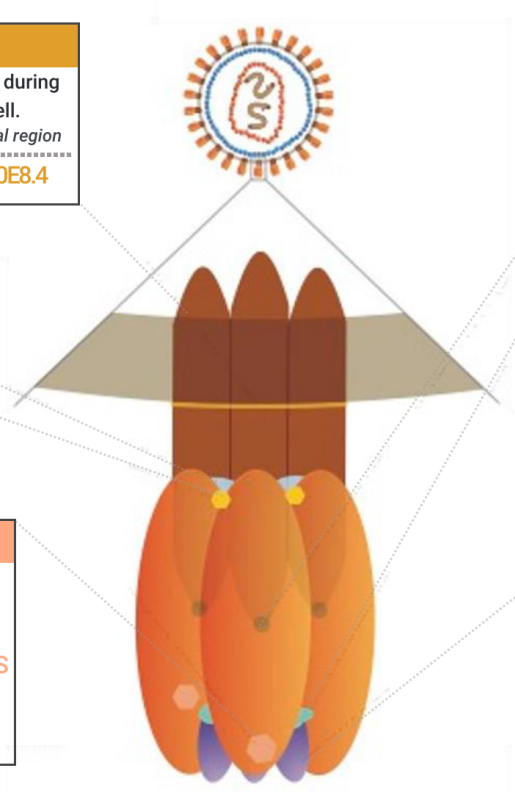
A region of the Env protein that is heavily sugar-coated and has little functional role in virus entry.

SF12 VRC-PG05

CD4 binding site

Binds to the CD4 receptor on the surface of the host cell, causing structural changes that allow the gp120 protein to bind to the host cell membrane.

3BNC117	12A12	CH235.12	N6LS	VRC01	VRC07-523LS
3BNC117LS	BANC131	CH31	NIH 45i	VRC01LS	VRC13
3BNC117LSJ	CH103	N49P7	PG04	VRC07	VRC01.23LS



Fusion peptide

Inserts into and disrupts host cell membrane, allowing HIV to release genetic material into the cell.

ACS202 VRC34.01

V3-glycan

Involved in the initial interaction and resulting fusion between the ENV protein and a corceptor in the host cell membrane.

10-1074	PGT121	DH270
10-1074LS	PGT121LS	PGT128
10-1074LSJ	PGT121.414.LS	PGT135
		ePGT121v1-LS

V1/V2-glycan

Involved in a structural change to the Env protein enabling HIV to fuse and infect the host cell.

CAP256V2LS	PG9	PGDM1400	PGT141-145
CAP256J3LS	PG16	PGDM1400LS	ePGDM1400v9
CH01-04			

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