Table 10: **Integrase**

HXB2 Location	Author Location	Sequence	Immunogen	Species(HLA)	References
Integrase(28–36)	Pol(743–751 SF2)	LPPVVAKEI	HIV-1 infection	human(B*5101)	[Tomiyama (1999)]
	• HLA-B27, -B51, and -B57 are associated with slow progression to AIDS, while HLA-B35, -B8, -B24 are associated with a rapid progression to AIDS (Nat. Med. 2:405, 1996;Lancet 22:1187, 1986;Hum Immunol 22:73, 1988;Hum Immunol 44:156, 1995) • 15% of Japanese populations carry HLA-B51 while HLA-B27 and -B57 are detected in less than 0.3% • Of the 172 HIV-1 peptides with HLA-B*5101 anchor residues, 33 bound to HLA-B*5101, seven of these peptides were reactive with CTL from 3 B*5101 positive individuals, and six were properly processed • Four of the six epitopes were highly conserved among B subtype sequences – LPPVVAKEI is highly conserved				
Integrase(82–89)	RT(797–804 SF2)	GYIEAEVI	HIV-1 infection	human(A*2402)	[Ikeda-Moore (1997)]
	• Defined using reverse immunogenetics – 59 HLA-A*2402 binding peptides were predicted by searching for A*2402 anchors in HIV proteins (Tyr at 2, and Phe, Leu or Ile at the C term) – 53 of the 59 peptides bound A*2402 • This peptide induced CTL in 1/4 HIV-1+ people tested • GYIEAEVI bound to A*2402 weakly, the epitope can be processed in a vaccinia construct and presented – two specific CTL clones were obtained				
Integrase(96–104)	Integrase(823–831)	ETAYFILKL		human(A*6802)	[Dong & Rowland-Jones(1998)]
	• Epitope found in clade A, B, and D – Pers. Comm. S. Rowland-Jones and T. Dong				
Integrase(96–104)	Pol( )	ETAYFILKL	HIV-1 exposed seronegative	human(A*6802)	[Kaul (2000)]
	• 11/16 heavily HIV exposed but persistently seronegative sex-workers in Nairobi had HIV-specific CD8 γ-IFN responses in the cervix – systemic CD8+ T cell responses tended to be to the same epitopes but at generally lower levels than cervical CD8+ T cell responses • Low risk individuals did not have such CD8+ cells • CD8+ epitopes T cell DTVLEDINL (3 individuals), SLYNVATL (4 individuals), LSPRTLNAW (3 individuals) and YPLTFGWCF (4 individuals) were most commonly recognized by the HIV-resistant women				
Integrase(173–181)	Pol(888–896)	KTAVQMAVF		human(B*5701)	[Brander & Goulder(2001)]
	• C. Brander notes this is a B*5701 epitope • Epitope is motif based, personal communication from C. Hay • Subtype of B57 not determined				
Integrase(173–181)	Pol(888–896)	KTAVQMAVF		human(B57)	[Hay(1999)]
	• Epitope is motif based, personal communication from C. Hay				

HIV CTL Epitopes

HXB2 Location	Author Location	Sequence	Immunogen	Species(HLA)	References
Integrase(179–188)	Integrase(179–188 LAI)	AVFIHNFKRK		human(A*1101)	[Brander & Goulder(2001), Fukada (1999)]
	• C. Brander notes this is an A*1101 epitope				
Integrase(241–249)	Pol(576–584)	LLWKGEGAV	*in vitro* stimulation	human(A*0201)	[van der Burg (1996)]
	• Slow dissociation rate, associated with immunogenicity in transgenic HLA-A*0201/K^b mice • CTL generated by *in vitro* stimulation of PBMC derived from uninfected individual				
Integrase(241–249)	Pol(956–964)	LLWKGEGAV	HIV-1 infection	human(A2)	[Kundu (1998b)]
	• Allogeneic dendritic cells (DCs) were obtained from HLA-identical siblings, pulsed with rgp160 MN or A2-restricted HIV-1 epitope peptides, and infused monthly into six HIV-infected patients • 1/6 showed increased Env-specific CTL and increased lymphoproliferative responses, 2/6 showed increase only in proliferative responses, and 3/6 showed no change – pulsed DCs were well tolerated • LLWKGEGAV is a conserved HLA-A2 epitope included in this study – 6/6 patients had this sequence as their HIV direct sequence, but only four of these had a detectable CTL response				
Integrase(241–249)	Pol(956–964 HXB2R)	LLWKGEGAV	no CTL shown	human(A2)	[Parker (1992), Parker (1994)]
	• Studied in the context of HLA-A2 peptide binding				
Integrase(241–249)	Pol(956–964 HXB2R)	LLWKGEGAV	no CTL shown	human(A2)	[Brander (1995)]
	• No CTL activity found in HIV-infected subjects, epitope studied in the context of inclusion in a synthetic vaccine				