

Table 2: **p24**

HXB2 Location	Author Location	Sequence	Immunogen	Species(HLA)	References
p24(1–11)	p24(1–11 SF2)	PIVQNLQGQMV	HIV-1 infection	human(DR1)	[Harcourt (1998)]
	<ul style="list-style-type: none"> <li>• 43 asymptomatic HIV+ individuals were screened for proliferative responses to HIV – 12 showed a response, and dominant epitopes were mapped for two individuals, one in p24 and one in p17</li> <li>• Out of five truncated versions of peptide PIVQNLQGQMVHQAISPRTL, only p24-1/11 elicited a proliferative response.</li> <li>• Nine naturally occurring variants of this epitope were found within the individual who made this response – all bound to HLA-DR1, but three did not stimulate the CD4+ T-cell line that recognized the index peptide, suggestive of immune escape.</li> </ul>				
p24(1–15)	p24(133–147 IIIB B10)	PIVQNIQGQMVHQAI	HIV infection	human( )	[Wahren (1989b), Wahren (1989a)]
	<ul style="list-style-type: none"> <li>• Peptides were identified that commonly evoke T-cell responses – 62% of 90 HIV+ people had a T-cell response to this peptide</li> </ul>				
p24(1–22)	p24(133–154 SF2)	PIVQNIQGQMVHQAISPRTLNA	HIV-1 infection	human( )	[Rosenberg (1997)]
	<ul style="list-style-type: none"> <li>• While anti-HIV CD4 T helper responses are characteristically undetectable in chronic infections, strong p24-specific proliferative responses were inversely correlated with low viral load in 10 chronically infected people</li> <li>• The dominant proliferative response in one of two long term survivors was to this peptide</li> </ul>				
p24(11–26)	p24(143–157)	VHQAISPRTLNAWVKC	Peptide stimulation <i>in vitro</i>	human( )	[Bedford (1997)]
	<ul style="list-style-type: none"> <li>• This epitope elicits a primary proliferative response in PBMC from uninfected donors</li> <li>• Matches 3/3 anchor residues for HLA DR: VHQAISPRT</li> </ul>				
p24(21–36)	p24(153–167)	NAWVKVVEEKAFSPEK	Peptide stimulation <i>in vitro</i>	human( )	[Bedford (1997)]
	<ul style="list-style-type: none"> <li>• This epitope elicits a primary proliferative response in PBMC from uninfected donors</li> </ul>				
p24(31–46)	p24(163–177)	AFSPEVIPMFSALSEC	Peptide stimulation <i>in vitro</i>	human(A*0201)	[Bedford (1997)]
	<ul style="list-style-type: none"> <li>• This epitope elicits a primary proliferative response in PBMC from uninfected donors</li> <li>• This peptide contains a CTL epitope identified in HIV-positive patients</li> <li>• Peptide binds to HLA A*0201 and causes regulation of class I expression on T2 cells</li> <li>• Matches 3/3 anchor residues for HLA DR: VIPMFSALS</li> </ul>				
p24(31–52)	p24(163–184 SF2)	AFSPEVIPMFSALSEGATPQDL	HIV-1 infection	human( )	[Rosenberg (1997)]
	<ul style="list-style-type: none"> <li>• Low viral load correlated with strong HIV-1-specific proliferative response</li> <li>• A proliferative response to this epitope was detected in two long term survivors</li> </ul>				

## HIV Helper-T Cell Epitopes

HXB2 Location	Author Location	Sequence	Immunogen	Species(HLA)	References
p24(41–56)	p24(173–187)	SALSEGATPQDLNTMC	Peptide stimulation <i>in vitro</i>	human( )	[Bedford (1997)]
					<ul style="list-style-type: none"> <li>• This epitope elicits a primary proliferative response in PBMC from uninfected donors</li> </ul>
p24(48–62)	p24(180–194)	TPQDLNTMLNTVGGH	HIV-1 infection	human( )	[Adams (1997)]
					<ul style="list-style-type: none"> <li>• One of four immunogenic Gag peptides used in study of proliferative response to p24</li> <li>• Homology to an SIV epitope recognized by macaque T-cells</li> <li>• T-cells from 8 of 19 HIV+ individuals responded to this epitope</li> <li>• Improved assay system (increase in culture time to 8 days and addition of IL-2 to cultures) gave increased detection of proliferative response</li> </ul>
p24(51–66)	p24(183–197)	DLNTMLNTYGGHQAAC	Peptide stimulation <i>in vitro</i>	human( )	[Bedford (1997)]
					<ul style="list-style-type: none"> <li>• This epitope elicits a primary proliferative response in PBMC from uninfected donors</li> </ul>
p24(71–86)	p24(203–217)	ETINEEAAEWDRVHPC	Peptide stimulation <i>in vitro</i>	human( )	[Bedford (1997)]
					<ul style="list-style-type: none"> <li>• This epitope elicits a primary proliferative response in PBMC from uninfected donors</li> </ul>
p24(76–85)	p24(208–217)	EAAEWDRVHP	HIV-1 infection	human( )	[Adams (1997)]
					<ul style="list-style-type: none"> <li>• One of four immunogenic Gag peptides used in study of the proliferative response to p24</li> <li>• T-cells from 11 of 24 HIV+ individuals responded to this epitope</li> <li>• Improved assay system (increase in culture time to 8 days and addition of IL-2 to cultures) gave increased detection of proliferative response</li> </ul>
p24(76–90)	p24(208–222 IIIB B10)	EAAEWDRVHPVHAGP	HIV infection	human( )	[Wahren (1989b), Wahren (1989a)]
					<ul style="list-style-type: none"> <li>• 12 gag and 18 env T-cell sites were identified that could commonly evoke T-cell responses</li> </ul>
p24(81–95)	p24(215–229 SF2)	DRVHPVHAGPIAPGQ	SF2 p24:Ty-VLP	macaque( )	[Mills (1990)]
					<ul style="list-style-type: none"> <li>• Responses to 3 T-cell and multiple linear B-cell epitopes were found in vaccinated macaques</li> </ul>
p24(81–102)	p24(213–234 SF2)	DRVHPVHAGPIAPGQMR- EPRGS	HIV-1 infection	human( )	[Rosenberg (1997)]
					<ul style="list-style-type: none"> <li>• While anti-HIV CD4 T helper responses are characteristically undetectable in chronic infections, strong p24-specific proliferative responses were inversely correlated with low viral load in 10 chronically infected people</li> <li>• The dominant proliferative response in one of two long term survivors was to this peptide</li> </ul>
p24(87–101)	p24(219–233 BRU)	HAGPIAPGQMREPRG	peptide	murine(H-2 <sup>b</sup> )	[Vaslin (1994)]
					<ul style="list-style-type: none"> <li>• Peptide G2: could prime for <i>in vitro</i> immunoproliferative responses and for subsequent IgG responses</li> </ul>

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HXB2 Location	Author Location	Sequence	Immunogen	Species(HLA)	References
p24(96–103)	p24(228–235 LAI) • Stimulates T-cell proliferation in HIV-infected donors	MREPRGSD	HIV infection	human( )	[Schrier (1989)]
p24(96–110)	p24(228–242 IIIB B10) • 12 gag and 18 env T-cell sites were identified that could commonly evoke T-cell responses	MREPRGSKIAGTTST	HIV infection	human( )	[Wahren (1989b), Wahren (1989a)]
p24(101–115)	p24(235–249 SF2) • Responses to 3 T-cell and multiple linear B-cell epitopes were found in vaccinated macaques – defined by T-cell clone	GSDIAGTTSTLQEIQI	SF2 p24:Ty-VLP	macaque( )	[Mills (1990)]
p24(101–116)	p24( ) • This epitope elicits a primary proliferative response in PBMC from uninfected donors	GSDIAGTTSTLQEIQIC	Peptide stimulation <i>in vitro</i>	human( )	[Bedford (1997)]
p24(111–132)	p24(243–264 SF2) • Low viral load correlated with strong HIV-1-specific proliferative response • A proliferative response to this epitope was detected in two long term survivors	LQEIQIGWMTNPPPIPVGEIYKR	HIV-1 infection	human( )	[Rosenberg (1997)]
p24(121–136)	p24(253–267) • This epitope elicits a primary proliferative response in PBMC from uninfected donors	NPPIPVGEIYKRWIIC	Peptide stimulation <i>in vitro</i>	human( )	[Bedford (1997)]
p24(131–145)	p24(265–279 SF2) • Responses to 3 T-cell and multiple linear B-cell epitopes were found in vaccinated macaques – defined by T-cell clone	KRWIILGLNKIVRMY	SF2 p24:Ty-VLP	macaque( )	[Mills (1990)]
p24(131–152)	p24(263–284 SF2) • Low viral load correlated with strong HIV-1-specific proliferative response • A proliferative response to this epitope was detected in two long term survivors	KRWIILGLNKIVRMYSPSILSD	HIV-1 infection	human( )	[Rosenberg (1997)]
p24(135–154)	p24(267–286) • One of four immunogenic Gag peptides used in study of the proliferative response to p24 • 8 of 24 HIV+ individuals responded to this epitope • Improved assay system (increase in culture time to 8 days and addition of IL-2 to cultures) gave increased detection of proliferative response	ILGLNKIVRMYSPSILDIR	HIV-1 infection	human( )	[Adams (1997)]

## HIV Helper-T Cell Epitopes

HXB2 Location	Author Location	Sequence	Immunogen	Species(HLA)	References
p24(141–156)	p24(273–287)	IVRMYSPTSILDIRQC	Peptide stimulation <i>in vitro</i>	human( )	[Bedford (1997)]
		<ul style="list-style-type: none"> <li>• This epitope elicits a primary proliferative response in PBMC from uninfected donors</li> <li>• Matches 3/3 anchor residues for HLA DR: <b>IVRMYSPTS</b></li> </ul>			
p24(146–160)	p24(278–292 IIIB B10)	SPTSILDIRQGPKPEP	HIV infection	human( )	[Wahren (1989b), Wahren (1989a)]
		<ul style="list-style-type: none"> <li>• 12 gag and 18 env T-cell sites were identified that could commonly evoke T-cell responses</li> </ul>			
p24(150–169)	p24(282–301)	ILDIRQGPKEPFRDYVDRFY	HIV-1 infection	human( )	[Schrier (1989)]
		<ul style="list-style-type: none"> <li>• Stimulates T-cell proliferation in HIV-infected donors</li> </ul>			
p24(151–166)	p24(283–297)	LDIRQGPKEPFRDYVC	Peptide stimulation <i>in vitro</i>	human( )	[Bedford (1997)]
		<ul style="list-style-type: none"> <li>• This epitope elicits a primary proliferative response in PBMC from uninfected donors</li> </ul>			
p24(155–177)	p24(287–309)	QGPKEPFRDYVDRFYKT-LRAEQA	Peptide immunization	murine( )	[Nakamura (1997)]
		<ul style="list-style-type: none"> <li>• Mice immunized with this peptide generated proliferative responses, CTLs as well as antibodies</li> <li>• This immunogenic domain is from a highly conserved region of p24</li> </ul>			
p24(156–170)	p24(288–302 IIIB B10)	GPKEPFRDYVDRFYK	HIV infection	human( )	[Wahren (1989b), Wahren (1989a)]
		<ul style="list-style-type: none"> <li>• 12 gag and 18 env T-cell sites were identified that could commonly evoke T-cell responses</li> </ul>			
p24(156–174)	p24(287–306)	QPKEPFRDYVDRFYKTLRA	HIV-1 infection	human( )	[Adams (1997)]
		<ul style="list-style-type: none"> <li>• One of four immunogenic Gag peptides used in study of the proliferative response to p24</li> <li>• T-cells from 5 of 21 HIV+ individuals responded to this epitope</li> <li>• Improved assay system (increase in culture time to 8 days and addition of IL-2 to cultures) gave increased detection of proliferative response</li> </ul>			
p24(181–198)	p24(313–327)	VKNWMTETLLVQNANC	Peptide stimulation <i>in vitro</i>	human( )	[Bedford (1997)]
		<ul style="list-style-type: none"> <li>• This epitope elicits a primary proliferative response in PBMC from uninfected donors</li> <li>• Matches 3/3 anchor residues for HLA DR: <b>VKNWMTETL</b></li> </ul>			