

Table 7: **Integrase**

MAB ID	HXB2 Location	Author's Location	Sequence	Neutralizing	Immunogen	Species (Isotype)
171 1C4	Integrase(1-16)	Integrase(1-16) HXB2)	FLDGIDKAQDEHEKYH	no	bacterial expressed integrase	murine(IgG <sub>1</sub> κ)
<b>References:</b> [Haugan (1995), Nilsen (1996)]						
<ul style="list-style-type: none"> <li>• 1C4: MAb interferes with integrase binding to DNA [Haugan (1995)]</li> <li>• 1C4: One of a large set of MAbs that interact with the N-terminal part of integrase: 1C4, 2C11, 2E3, 3E11, 3F9, 5F8, 6G5, 7B6, 7C6 – these MAbs inhibit end processing and DNA joining, but had little effect on integration activities [Nilsen (1996)]</li> </ul>						
172 2C11	Integrase(1-16)	Integrase(1-16) HXB2)	FLDGIDKAQDEHEKYH	no	bacterial expressed integrase	murine(IgG <sub>1</sub> κ)
<b>References:</b> [Nilsen (1996)]						
<ul style="list-style-type: none"> <li>• 2C11: One of a large set of MAbs that interact with the N-terminal part of integrase: 1C4, 2C11, 2E3, 3E11, 3F9, 5F8, 6G5, 7B6, 7C6 – these MAbs inhibit end processing and DNA joining, but had little effect on integration activities [Nilsen (1996)]</li> </ul>						
173 2E3	Integrase(1-16)	Integrase(1-16) HXB2)	FLDGIDKAQDEHEKYH	no	bacterial expressed integrase	murine(IgG <sub>1</sub> κ)
<b>References:</b> [Nilsen (1996), Ovod (1992)]						
<ul style="list-style-type: none"> <li>• 2E3: There are two MAbs called 2E3 – the other one binds to Nef [Ovod (1992)]</li> <li>• 2E3: One of a large set of MAbs that interact with the N-terminal part of integrase: 1C4, 2C11, 2E3, 3E11, 3F9, 5F8, 6G5, 7B6, 7C6 – these MAbs inhibit end processing and DNA joining, but had little effect on integration activities [Nilsen (1996)]</li> </ul>						
174 3E11	Integrase(1-16)	Integrase(1-16) HXB2)	FLDGIDKAQDEHEKYH	no	bacterial expressed integrase	murine(IgG <sub>1</sub> κ)
<b>References:</b> [Otteken (1992), Nilsen (1996)]						
<ul style="list-style-type: none"> <li>• 3E11: There is another MAb with this ID that recognizes p17 [Otteken (1992)]</li> <li>• 3E11: Recognized an epitope present on HIV-2/SIVmac, SIVagm, HIV-1, and SIVmnd [Otteken (1992)]</li> <li>• 3E11: One of a large set of MAbs that interact with the N-terminal part of integrase: 1C4, 2C11, 2E3, 3E11, 3F9, 5F8, 6G5, 7B6, 7C6 – these MAbs inhibit end processing and DNA joining, but had little effect on integration activities [Nilsen (1996)]</li> </ul>						

Table of HIV MAbs

MAB ID	HXB2 Location	Author's Location	Sequence	Neutralizing	Immunogen	Species (Isotype)
175 3F9	Integrase(1-16)	Integrase(1-16) HXB2)	FLDGIDKAQDEHEKYH	no	bacterial expressed integrase	murine(IgG <sub>1</sub> κ)
<b>References:</b> [Nilsen (1996)]						
<ul style="list-style-type: none"> <li>• 3F9: One of a large set of MAbs that interact with the N-terminal part of integrase: 1C4, 2C11, 2E3, 3E11, 3F9, 5F8, 6G5, 7B6, 7C6 – these MAbs inhibit end processing and DNA joining, but had little effect on integration activities [Nilsen (1996)]</li> </ul>						
176 5F8	Integrase(1-16)	Integrase(1-16) HXB2)	FLDGIDKAQDEHEKYH	no	bacterial expressed integrase	murine(IgG <sub>1</sub> κ)
<b>References:</b> [Haugan (1995), Nilsen (1996)]						
<ul style="list-style-type: none"> <li>• 5F8: There is another MAB with this ID that recognizes and unknown protein in HIV [Pinter (1995)]</li> <li>• 5F8: MAB interfères with integrase binding to DNA [Haugan (1995)]</li> <li>• 5F8: One of a large set of MAbs that interact with the N-terminal part of integrase: 1C4, 2C11, 2E3, 3E11, 3F9, 5F8, 6G5, 7B6, 7C6 – these MAbs inhibit end processing and DNA joining, but had little effect on integration activities [Nilsen (1996)]</li> </ul>						
177 6G5	Integrase(1-16)	Integrase(1-16) HXB2)	FLDGIDKAQDEHEKYH	no	bacterial expressed integrase	murine(IgG <sub>1</sub> κ)
<b>References:</b> [Nilsen (1996)]						
<ul style="list-style-type: none"> <li>• 6G5: One of a large set of MAbs that interact with the N-terminal part of integrase: 1C4, 2C11, 2E3, 3E11, 3F9, 5F8, 6G5, 7B6, 7C6 – these MAbs inhibit end processing and DNA joining, but had little effect on integration activities [Nilsen (1996)]</li> </ul>						
178 7B6	Integrase(1-16)	Integrase(1-16) HXB2)	FLDGIDKAQDEHEKYH	no	bacterial expressed integrase	murine(IgG <sub>1</sub> κ)
<b>References:</b> [Nilsen (1996)]						
<ul style="list-style-type: none"> <li>• 7B6: One of a large set of MAbs that interact with the N-terminal part of integrase: 1C4, 2C11, 2E3, 3E11, 3F9, 5F8, 6G5, 7B6, 7C6 – these MAbs inhibit end processing and DNA joining, but had little effect on integration activities [Nilsen (1996)]</li> </ul>						
179 7C6	Integrase(1-16)	Integrase(1-16) HXB2)	FLDGIDKAQDEHEKYH	no	bacterial expressed integrase	murine(IgG <sub>1</sub> κ)
<b>References:</b> [Nilsen (1996)]						
<ul style="list-style-type: none"> <li>• 7C6: One of a large set of MAbs that interact with the N-terminal part of integrase: 1C4, 2C11, 2E3, 3E11, 3F9, 5F8, 6G5, 7B6, 7C6 – these MAbs inhibit end processing and DNA joining, but had little effect on integration activities [Nilsen (1996)]</li> </ul>						

Table of HIV MAbs

MAB ID	HXB2 Location	Author's Location	Sequence	Neutralizing	Immunogen	Species (Isotype)
180 6C5	Integrase(17-38)	Integrase(17-38 HXB2)	SNWRAMASDFNLPPVVAKEIV-A	no	bacterial expressed integrase	murine(IgG <sub>1</sub> κ)
<b>References:</b> [Haugan (1995), Nilsen (1996)] <ul style="list-style-type: none"> <li>• 6C5: MAb interferes with integrase binding to DNA [Haugan (1995)]</li> <li>• 6C5: This MAb inhibits end processing and DNA joining, but had little effect on integration activities [Nilsen (1996)]</li> </ul>						
181 4D6	Integrase(42-55)	Integrase(42-55 HXB2)	KCQLKGEAMHGQVD	no	bacterial expressed integrase	murine(IgG <sub>1</sub> κ)
<b>References:</b> [Haugan (1995), Nilsen (1996)] <ul style="list-style-type: none"> <li>• 4D6: MAb interferes with integrase binding to DNA [Haugan (1995)]</li> <li>• 4D6: This MAb inhibits end processing and DNA joining, and reduces reintegration activity [Nilsen (1996)]</li> </ul>						
182 anti-K159	Integrase(151-163)	Integrase(163-175)	VESMNKELKKIIG		peptide K159 of Integrase	rabbit(IgG)
<b>References:</b> [Maroun (1999)] <ul style="list-style-type: none"> <li>• anti-K159: Both the peptide K159, SQGVVESMNKELKKIIGVQRDAEHLKTA, and the Abs raised against this peptide inhibit Integrase activity – K159 was found to fulfill condition of minimal number of helical heptads to achieve the formation of a stable coiled-coil structure – Integrase is proposed to function as a dimer interacting in this region [Maroun (1999)]</li> </ul>						
183 8-6	Integrase(211-227)	Integrase(211-227 HXB2)	KELQKQITKIQNFVYY	no	Integrase linked to maltose binding protein (MBP)	murine(IgG <sub>1</sub> )
<b>Donor:</b> Yoshihiro Kitamura, Div of Mol Genetics, Nat Inst of Infectious Diseases, Musashimurayama, Japan <b>References:</b> [Ishikawa (1999)] <ul style="list-style-type: none"> <li>• 8-6: Antibody binds proximal to the DNA binding region [Ishikawa (1999)]</li> </ul>						
184 2-19	Integrase(228-236)	Integrase(228-236 HXB2)	RDSRNPLWK	no	Integrase linked to maltose binding protein (MBP)	murine(IgG <sub>2b</sub> )
<b>Donor:</b> Yoshihiro Kitamura, Div of Mol Genetics, Nat Inst of Infectious Diseases, Musashimurayama, Japan <b>References:</b> [Ishikawa (1999)] <ul style="list-style-type: none"> <li>• 2-19: MAb inhibits RT-Integrase interaction, and the terminal cleavage and strand transfer functions of Integrase, but not the disintegration activity [Ishikawa (1999)]</li> </ul>						

Table of HIV MAbs

MAB ID	HXB2 Location	Author's Location	Sequence	Neutralizing	Immunogen	Species (Isotype)
185 19	Integrase(228–236)	Integrase(228–236 LAI)	RDSRNPLWK	no	rec IN	murine(IgG <sub>1</sub> )
<p><b>References:</b> [Bizub-Bender (1994), Levy-Mintz (1996), Kitamura (1999)]</p> <ul style="list-style-type: none"> <li>• 19: BALBc mice were immunized with rec integrase, hybridomas expressing anti-integrase Abs were generated, and the antibodies characterized – 19 has a low binding affinity [Bizub-Bender (1994)]</li> <li>• 19: Called 2-19, scAb2-19 is a single-chain Ab made from MAb 2-19 –acts intra-cellularly to block infection at low MOI by binding to integrase – scAb interfered with the folding of Gag-Pol polyprotein, the Ab did not affect viral production in LAI transfected cells, but the virus produced was less infectious – authors suggest that the epitope may be conformational [Kitamura (1999)]</li> </ul>						
186 8-22	Integrase(237–252)	Integrase(237–252 HXB2)	GPAKLLWKGEAVVIQ	no	Integrase linked to maltose binding protein (MBP)	murine(IgG <sub>1</sub> )
<p><b>Donor:</b> Yoshihiro Kitamura, Div of Mol Genetics, Nat Inst of Infectious Diseases, Musashimurayama, Japan</p> <p><b>References:</b> [Ishikawa (1999)]</p> <ul style="list-style-type: none"> <li>• 8-22: MAb inhibits the terminal cleavage and strand transfer functions of Integrase, but not the disintegration activity [Ishikawa (1999)]</li> </ul>						
187 4-20	Integrase(253–261)	Integrase(253–261 HXB2)	DNSDIKVVVP	no	Integrase linked to maltose binding protein (MBP)	murine(IgG <sub>1</sub> )
<p><b>Donor:</b> Yoshihiro Kitamura, Div of Mol Genetics, Nat Inst of Infectious Diseases, Musashimurayama, Japan</p> <p><b>References:</b> [Ishikawa (1999)]</p> <ul style="list-style-type: none"> <li>• 4-20: Inhibits the terminal cleavage and strand transfer functions of Integrase, but not the disintegration activity [Ishikawa (1999)]</li> </ul>						
188 6-19	Integrase(261–270)	Integrase(261–270 HXB2)	RRKAKIIRD	no	Integrase linked to maltose binding protein (MBP)	murine(IgG <sub>2b</sub> )
<p><b>Donor:</b> Yoshihiro Kitamura, Div of Mol Genetics, Nat Inst of Infectious Diseases, Musashimurayama, Japan</p> <p><b>References:</b> [Ishikawa (1999)]</p> <ul style="list-style-type: none"> <li>• 6-19: Inhibits the terminal cleavage and strand transfer functions of Integrase, but not the disintegration activity [Ishikawa (1999)]</li> </ul>						

Table of HIV MAbs

MAB ID	HXB2 Location	Author's Location	Sequence	Neutralizing	Immunogen	Species (Isotype)
189 8E5	Integrase(262–271)	Integrase(262–271 HXB2)	RRKAKIIRDY	no	bacterial expressed integrase	murine(IgG <sub>1</sub> κ)
<b>References:</b> [Haugan (1995), Nilsen (1996)] <ul style="list-style-type: none"> <li>• 8E5: MAb interferes with integrase binding to DNA [Haugan (1995)]</li> <li>• 8E5: A set of three MAbs recognize an epitope in this region, 7C3, 7F11, and 8E5 – all three HIV-1 MAbs cross-react with HIV-2 IN – these MAbs inhibit end-processing, DNA joining and reintegration, and had little effect on disintegration [Nilsen (1996)]</li> </ul>						
190 7C3	Integrase(262–271)	Integrase(262–271 HXB2)	RRKAKIIRDY	no	bacterial expressed integrase	murine(IgG <sub>1</sub> κ)
<b>References:</b> [Haugan (1995), Nilsen (1996)] <ul style="list-style-type: none"> <li>• 7C3: MAb interferes with integrase binding to DNA [Haugan (1995)]</li> <li>• 7C3: A set of three MAbs recognize an epitope in this region, 7C3, 7F11, and 8E5 – all three HIV-1 MAbs cross-react with HIV-2 IN – these MAbs inhibit end-processing, DNA joining and reintegration, and had little effect on disintegration [Nilsen (1996)]</li> </ul>						
191 7F11	Integrase(262–271)	Integrase(262–271 HXB2)	RRKAKIIRDY	no	bacterial expressed integrase	murine(IgG <sub>1</sub> κ)
<b>References:</b> [Nilsen (1996), Lasky (1987)] <ul style="list-style-type: none"> <li>• 7F11: A set of three MAbs recognize an epitope in this region, 7C3, 7F11, and 8E5 – all three HIV-1 MAbs cross-react with HIV-2 IN – these MAbs inhibit end-processing, DNA joining and reintegration, and had little effect on disintegration [Nilsen (1996)]</li> <li>• 7F11: There is another MAb with this name that binds to gp120 [Lasky (1987)]</li> </ul>						
192 MAb 35	Integrase(264–273)	Integrase()	KAKIIRDY GK	no	rec IN	murine(IgGκ)
<b>References:</b> [Barsov (1996), Acel (1998)] <ul style="list-style-type: none"> <li>• MAb 35: There appears to be two different IN Abs with similar names: MAb 35 and 35 [Barsov (1996), Bizub-Bender (1994)]</li> <li>• MAb 35: Although MAb 35 does not inhibit HIV-1 IN, Fab 35 inhibits 3'-end processing, strand transfer and disintegration [Barsov (1996)]</li> <li>• MAb 35: Integrase was shown to have intrinsic DNA polymerase activity that can catalyze gap repair – MAb 35 inhibits this activity [Acel (1998)]</li> </ul>						