

Table 7: **Integrase**

MAB ID	HXB2 Location	Author's Location	Sequence	Neutralizing	Immunogen	Species(Isotype)
166 1C4	Integrase(1–16)	Integrase(1–16 HXB2)	FLDGIDKAQDEHEKYH	no	bacterial expressed integrase	murine(IgG ₁ κ)
<p>References: [Haugan (1995), Nilsen (1996)]</p> <ul style="list-style-type: none"> • 1C4: MAb interferes with integrase binding to DNA –Haugan95 • 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 –Nilsen96 						
167 2C11	Integrase(1–16)	Integrase(1–16 HXB2)	FLDGIDKAQDEHEKYH	no	bacterial expressed integrase	murine(IgG ₁ κ)
<p>References: [Nilsen (1996)]</p> <ul style="list-style-type: none"> • 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 –Nilsen96 						
168 2E3	Integrase(1–16)	Integrase(1–16 HXB2)	FLDGIDKAQDEHEKYH	no	bacterial expressed integrase	murine(IgG ₁ κ)
<p>References: [Nilsen (1996), Ovod (1992)]</p> <ul style="list-style-type: none"> • 2E3: There are two MABs called 2E3 – the other one binds to Nef –Ovod92 • 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 –Nilsen96 						
169 3E11	Integrase(1–16)	Integrase(1–16 HXB2)	FLDGIDKAQDEHEKYH	no	bacterial expressed integrase	murine(IgG ₁ κ)
<p>References: [Otteken (1992), Nilsen (1996)]</p> <ul style="list-style-type: none"> • 3E11: There is another MAB with this ID that recognizes p17 –Otteken92 • 3E11: Recognized an epitope present on HIV-2/SIVmac, SIVagm, HIV-1, and SIVmnd –Otteken92 • 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 –Nilsen96 						

MAb ID	HXB2 Location	Author's Location	Sequence	Neutralizing	Immunogen	Species(Isotype)
170 3F9	Integrase(1–16)	Integrase(1–16 HXB2)	FLDGIDKAQDEHEKYH	no	bacterial expressed integrase	murine(IgG ₁ κ)
<p>References: [Nilsen (1996)]</p> <ul style="list-style-type: none"> • 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 –Nilsen96 						
171 5F8	Integrase(1–16)	Integrase(1–16 HXB2)	FLDGIDKAQDEHEKYH	no	bacterial expressed integrase	murine(IgG ₁ κ)
<p>References: [Haugan (1995), Nilsen (1996)]</p> <ul style="list-style-type: none"> • 5F8: There is another MAb with this ID that recognizes and unknown protein in HIV –Pinter95b • 5F8: MAb interferes with integrase binding to DNA –Haugan95 • 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 –Nilsen96 						
172 6G5	Integrase(1–16)	Integrase(1–16 HXB2)	FLDGIDKAQDEHEKYH	no	bacterial expressed integrase	murine(IgG ₁ κ)
<p>References: [Nilsen (1996)]</p> <ul style="list-style-type: none"> • 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 –Nilsen96 						
173 7B6	Integrase(1–16)	Integrase(1–16 HXB2)	FLDGIDKAQDEHEKYH	no	bacterial expressed integrase	murine(IgG ₁ κ)
<p>References: [Nilsen (1996)]</p> <ul style="list-style-type: none"> • 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 –Nilsen96 						
174 7C6	Integrase(1–16)	Integrase(1–16 HXB2)	FLDGIDKAQDEHEKYH	no	bacterial expressed integrase	murine(IgG ₁ κ)
<p>References: [Nilsen (1996)]</p> <ul style="list-style-type: none"> • 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 –Nilsen96 						

HIV Monoclonal Antibodies

MAB ID	HXB2 Location	Author's Location	Sequence	Neutralizing	Immunogen	Species(Isotype)
175 6C5	Integrase(17–38)	Integrase(17–38 HXB2)	SNWRAMASDFNLPPVVA-KEIVA	no	bacterial expressed integrase	murine(IgG ₁ κ)
<p>References: [Haugan (1995), Nilsen (1996)]</p> <ul style="list-style-type: none"> • 6C5: MAb interferes with integrase binding to DNA –Haugan95 • 6C5: This MAb inhibits end processing and DNA joining, but had little effect on integration activities –Nilsen96 						
176 4D6	Integrase(42–55)	Integrase(42–55 HXB2)	KCQLKGEAMHGQVD	no	bacterial expressed integrase	murine(IgG ₁ κ)
<p>References: [Haugan (1995), Nilsen (1996)]</p> <ul style="list-style-type: none"> • 4D6: MAb interferes with integrase binding to DNA –Haugan95 • 4D6: This MAb inhibits end processing and DNA joining, and reduces reintegration activity –Nilsen96 						
177 anti-K159	Integrase(151–163)	Integrase(163–175)	VESMNKELKKIIG		peptide K159 of Integrase	rabbit(IgG)
<p>References: [Maroun (1999)]</p> <ul style="list-style-type: none"> • anti-K159: Both the peptide K159, SQGVVESMNKELKKIIGQVRDQAEHLKTA, 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 –Maroun99 						
178 8-6	Integrase(211–227)	Integrase(211–227 HXB2)	KELQKQITKIQNFRVYY	no	Integrase linked to maltose binding protein (MBP)	murine(IgG ₁)
<p>Donor: Yoshihiro Kitamura, Div of Mol Genetics, Nat Inst of Infectious Diseases, Musashimurayama, Japan</p> <p>References: [Ishikawa (1999)]</p> <ul style="list-style-type: none"> • 8-6: Antibody binds proximal to the DNA binding region –Ishikawa99 						
179 2-19	Integrase(228–236)	Integrase(228–236 HXB2)	RDSRNPLWK	no	Integrase linked to maltose binding protein (MBP)	murine(IgG _{2b})
<p>Donor: Yoshihiro Kitamura, Div of Mol Genetics, Nat Inst of Infectious Diseases, Musashimurayama, Japan</p> <p>References: [Ishikawa (1999)]</p> <ul style="list-style-type: none"> • 2-19: MAb inhibits RT-Integrase interaction, and the terminal cleavage and strand transfer functions of Integrase, but not the disintegration activity –Ishikawa99 						

MAb ID	HXB2 Location	Author's Location	Sequence	Neutralizing	Immunogen	Species(Isotype)
180 19	Integrase(228–236)	Integrase(228–236 LAI)	RDSRNPLWK	no	rec IN	murine(IgG ₁)
<p>References: [Bizub-Bender (1994), Levy-Mintz (1996), Kitamura (1999)]</p> <ul style="list-style-type: none"> • 19: BALB/c mice were immunized with rec integrase, hybridomas expressing anti-integrase Abs were generated, and the antibodies characterized – 19 has a low binding affinity –Bizub-Bender94 • 19: scAb2-19: 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 –Kitamura99 						
181 8-22	Integrase(237–252)	Integrase(237–252 HXB2)	GPAKLLWKEGEAVVIQ	no	Integrase linked to maltose binding protein (MBP)	murine(IgG ₁)
<p>Donor: Yoshihiro Kitamura, Div of Mol Genetics, Nat Inst of Infectious Diseases, Musashimurayama, Japan</p> <p>References: [Ishikawa (1999)]</p> <ul style="list-style-type: none"> • 8-22: MAb inhibits the terminal cleavage and strand transfer functions of Integrase, but not the disintegration activity –Ishikawa99 						
182 4-20	Integrase(253–261)	Integrase(253–261 HXB2)	DNSDIKVVP	no	Integrase linked to maltose binding protein (MBP)	murine(IgG ₁)
<p>Donor: Yoshihiro Kitamura, Div of Mol Genetics, Nat Inst of Infectious Diseases, Musashimurayama, Japan</p> <p>References: [Ishikawa (1999)]</p> <ul style="list-style-type: none"> • 4-20: Inhibits the terminal cleavage and strand transfer functions of Integrase, but not the disintegration activity –Ishikawa99 						
183 6-19	Integrase(261–270)	Integrase(261–270 HXB2)	RRKAKIIRD	no	Integrase linked to maltose binding protein (MBP)	murine(IgG _{2b})
<p>Donor: Yoshihiro Kitamura, Div of Mol Genetics, Nat Inst of Infectious Diseases, Musashimurayama, Japan</p> <p>References: [Ishikawa (1999)]</p> <ul style="list-style-type: none"> • 6-19: Inhibits the terminal cleavage and strand transfer functions of Integrase, but not the disintegration activity –Ishikawa99 						

HIV Monoclonal Antibodies

MAb ID	HXB2 Location	Author's Location	Sequence	Neutralizing	Immunogen	Species(Isotype)
184 8E5	Integrase(262–271)	Integrase(262–271 HXB2)	RRKAKIIRDY	no	bacterial expressed integrase	murine(IgG ₁ κ)
<p>References: [Haugan (1995), Nilsen (1996)]</p> <ul style="list-style-type: none"> • 8E5: MAb interferes with integrase binding to DNA –Haugan95 • 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 –Nilsen96 						
185 7C3	Integrase(262–271)	Integrase(262–271 HXB2)	RRKAKIIRDY	no	bacterial expressed integrase	murine(IgG ₁ κ)
<p>References: [Haugan (1995), Nilsen (1996)]</p> <ul style="list-style-type: none"> • 7C3: MAb interferes with integrase binding to DNA –Haugan95 • 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 –Nilsen96 						
186 7F11	Integrase(262–271)	Integrase(262–271 HXB2)	RRKAKIIRDY	no	bacterial expressed integrase	murine(IgG ₁ κ)
<p>References: [Nilsen (1996), Lasky (1987)]</p> <ul style="list-style-type: none"> • 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 –Nilsen96 • 7F11: There is another MAb with this name that binds to gp120 –Lasky87 						
187 MAb 35	Integrase(264–273)	Integrase()	KAKIIRDYGK	no	rec IN	murine(IgGκ)
<p>References: [Barsov (1996), Acel (1998)]</p> <ul style="list-style-type: none"> • MAb 35: There appears to be two different IN Abs with similar names: MAb 35 and 35 –Barsov96,Bizub-Bender94 • MAb 35: Although MAb 35 does not inhibit HIV-1 IN, Fab 35 inhibits 3'-end processing, strand transfer and disintegration –Barsov96 • MAb 35: Integrase was shown to have intrinsic DNA polymerase activity that can catalyze gap repair – MAb 35 inhibits this activity –Acel98 						