

1 Addendum

1.1 Compilation of autoimmune diseases

Organs and organ systems which can be affected by AID	Autoimmune diseases
Muscles and joints	Dermatomyositis
	Juvenile rheumatoid arthritis (morbus Still, Still syndrome)
	Lambert-Eaton-syndrome
	Myasthenia gravis
	Morbus Bechterew (spondylitis ankylosans)
	Polychondritis (Panchondritis)
	Polymyositis
	Rheumatoid fever
	Rheumatoid arthritis
	Stiff-Man-syndrome (SMS; Moersch-Woltmann-syndrome)
Nervous system	Polymyalgia rheumatica
	Chronic-inflammatory, demyelinating polyneuropathy (CIDP)
	Guillain-Barré syndrome (GBS; Polyradiculoneuritis)
Kidneys	Multiple sclerosis (MS, Charcot's disease, encephalomyelitis disseminata)
	Goodpasture's syndrome (anti-GBM mediated glomerulonephritis)
Skin and connective tissue	Alopecia areata
	Dermatitis herpetiformis
	Lichen sclerosus
	Lupus erythematosus (discoid form)
	Mixed connective tissue disease (MCTD)
	Pemphigoid, scarred
	Pemphigoid, bullous
	Pemphigoid, vulgaris
	Scleroderma
	Psoriasis
Systemic lupus erythematosus	
Vitiligo	

Organs and organ systems which can be affected by AID	Autoimmune diseases
Gland and hormone system	Autoimmune adrenalitis (adrenocortical atrophy, Morbus Addison)
	Autoimmune oophoritis and orchitis
	Type 1 diabetes mellitus (IDDM)
	Hashimoto's thyroiditis
	Morbus Basedow (Graves' disease)
	Polyglandular autoimmune syndrome (PGA-syndrome; Schmidt's syndrome)
Inner organs, intestine, heart and lungs	Autoimmune cardiomyopathy
	Autoimmune hepatitis (chronic active hepatitis; CAH)
	Celiac disease
	Ulcerative colitis
	Chronic autoimmune gastritis
	Goodpasture's syndrome
	Idiopathic pulmonary fibrosis
	Morbus Crohn, Crohn's disease
	Primary biliary cirrhosis (PBC)
	Wegener's granulomatosis (Morbus Wegener)
Blood and clotting system	Autoimmune hemolytic anemia
	Autoimmune thrombocytopenia
	Cold agglutinin disease
	Autoimmune hemolytic Donath-Landsteiner anemia
	Cryoglobulinaemia
	Werlhof's disease
Vessels	Pernicious anemia (Addison-anemia; Morbus Biermer)
	Horton's syndrome (giant cell arteritis)
	Anti-phospholipid syndrome
	Churg-Strauss syndrome
	Takayasu disease (pulse-less disease, aortic arch syndrome)
	Temporal arteritis
	Vasculitis
	Periarteritis nodosa
Eyes	Ophthalmia sympathica
	Sjogren's syndrome
	Autoimmune uveitis
Ears, nose and throat	Autoimmune labyrinthine hearing loss
	Cogan's syndrome

Organs and organ systems which can be affected by AID	Autoimmune diseases
	Menière's disease
Reproductive organs	Autoimmune infertility
Multiple organs and parts of the body	CREST syndrome
	Behçet's disease
	Sarcoidosis (Besnier-Boeck-Schaumann disease)
	Reiter's syndrome

1.2 Gender related distribution of selected AIDs

Disease	Percent female (%)
Diabetes type 1, age <20	48
Diabetes type 2, age >20	35
Multiple sclerosis	64
Juvenile rheumatoid arthritis, age <16	75
Adult rheumatoid arthritis	75
Scleroderma	92
SLE	88-94
Thyroiditis, age >19	95

According to Cooper and Stroehla, 2003, Jacobson et al., 1997

1.3 Age at onset of selected autoimmune diseases

Disease	Mean or median	Approximate midrange (mean +/- standard deviation)
Childhood onset		
Juvenile rheumatoid arthritis	8	3-13
Type 1 diabetes	10	6-13
Mid-adult onset		
Multiple sclerosis	37	25-45
SLE	40	30-50
Scleroderma	50	35-65
Late-adult onset		
Rheumatoid arthritis	58	42-74

According to Cooper and Stroehla, 2003

1.4 Suggested viral associations for selected AIDs

Proposed AID	Virus	References
ALS	Retrovirus, HTLV	Westarp et al., 1995
Arthropathies	HTLV-1	Nishioka et al., 1993

Proposed AID	Virus	References
CNS disease	Measles	ter Meulen and Liebert, 1993
Guillain-Barré syndrome	CMV, EBV	Rouse and Deshpande, 2002, Jacobs et al., 1998, Wucherpfenning, 2001
Hemolytic anemia	LCMV	Mazza et al., 1997
Herpetic keratitis	HSV-1	Rouse and Deshpande, 2002, Zhao et al., 1998
IDDM	CBV, CMV, rubella, mumps, endogenous retrovirus, IAP, rotavirus, rhino-, hanta- and flavivirus	Rouse and Deshpande, 2002, Fujinami, 2001, Yoon et al., 1989, Ono et al., 1987, Conrad et al., 1997, Atkinson et al., 1994, Oldstone, 1998
MS	Herpes zoster (HHV-3), Herpes simplex (HHV-1, HHV-2), HHV-6, HHV-8, EBV (HHV-4), measles, mumps, rubella, lyssa, simian virus 5, HSV, parainfluenza-1, canine distemper virus, Marek's semliki forest virus, coronavirus, HTLV-1, MSRV, endogenous, HERV-H, scrapie-like agent, carp agent, HRES-1, ERV-9	Wucherpfenning and Strominger, 1995, Soldan et al., 1997, Tuke et al., 2004, Atkins et al., 2000, Munch et al., 1997, Rouse and Deshpande, 2002, Perron et al., 1997, Christensen et al., 1998, Serra et al., 2001, Murray, 2002, Oldstone, 1998, Brookes et al., 1992, Bengtsson et al., 1996, Haahr and Munch, 2000
Myasthenia gravis	HCV, herpes virus	Eddy et al., 1999, Rouse and Deshpande, 2002, Oldstone, 1998
Myocarditis	Coxsackie B3 virus, adenovirus, HCV	Rouse and Deshpande, 2002
PBC	Retrovirus	Xu et al., 2003
Rheumatoid arthritis	Retrovirus	Nelson et al., 1994, Ziegler et al., 1989
Sjogren's	IAP, HIV, retrovirus, HRES-1, Coxsackievirus	Nelson et al., 1994, Ono et al., 1987, et al., 1990a, Brookes et al., 1992, Triantafyllopoulou et al., 2004
SLE	EBV, IAP, retrovirus, HIV (p24), HTLV, HERV-E, Parvovirus B-19	Rouse and Deshpande, 2002, James and Harley, 1998, Nelson et al., 1994, Ono et al., 1987, Talal et al., 1990b, Brookes et al., 1992, Ogasawara et al., 1999, Severin et al., 2003
Systemic sclerosis, scleroderma	Retrovirus	Maul et al., 1989
Various rheumatoid diseases	HCV	McMurray and Elbourne, 1997

1.5 Possible cross-reactive immune responses (molecular mimicry)

Disease	Host protein	Cross reactive autoimmune responses	Reference
MS	Myelin proteins	Corona/measles/mumps virus, EBV, herpes viruses, HBV, papilloma virus, influenza virus, and bacteria including pseudomonas	Oldstone, 1998, Wucherpfenning and Strominger, 1995,
IDDM	Islet antigens (GAD 65), proinsulin carboxypeptidase H	Coxsackie B virus, rotavirus, HCV, herpes, rhino-, hanta- and flaviviruses, retroviruses	Oldstone, 1998
Myasthenia gravis	Acetylcholine receptor, neurofilaments	Herpes virus	Oldstone, 1998
SLE	E-antigen of HLA class I	HERV-E	Ogasawara et al., 1999
RA	Joints/DRB1*0401	EBV/gp110	Marrack et al., 2001

1.6 Retroviruses and associated diseases

Genus	Species	Main associated diseases
Alpharetroviruses	Avian leucosis virus (AVL)	B-cell lymphoma/leukemia, erythroleukemia, myeloid leukemia
Betaretroviruses	Mouse mammary tumor virus (MMTV)	Mammary adenocarcinoma, rarely T-cell lymphoma
	Mason-Pfizer monkey virus (MPMV)	No malignant disease known, infected animals suffer from immunosuppression (simian AIDS)
	Simian retrovirus (SRV)	
	Jaagsiekte sheep virus (JSRV)	Ovine pulmonary adenomastosis (epithelial lung cancer)
Gammaretroviruses	Enzootic nasal tumor virus (ENTV)	Tumors of the upper respiratory tract in sheep
	Murine leukemia viruses (MuLVs)	T-cell lymphoma/leukemia, myeloid leukemia, neurological disorders
	Feline leukemia virus (FeLV)	Aplastic anemia, immunodeficiency syndrome, T-cell lymphoma, myeloid leukemia
	Gibbon ape leukemia virus (GALV)	Myeloproliferative disorders in Gibbons
	Reticuloendotheliosis virus (REV)	Runting diseases, rarely chronic lymphatic diseases

Genus	Species	Main associated diseases
Deltaretroviruses	Human T-cell lymphotropic virus 1 (HTLV-1)	Adult T-cell leukemia, tropical spastic paraparesis/HTLV-associated myelopathy (TSP/HAM)
	Human T-cell lymphotropic virus 2 (HTLV-2)	No clear association with any disease
	Simian T-cell lymphotropic viruses (STLVs)	T-cell lymphoma in Old World monkeys (OWM)
	Bovine leukemia virus (BLV)	Bovine enzootic leucosis in cattle and sheep
Epsilonretroviruses	Walleye dermal sarcoma virus (WDSV)	Seasonal benign cutaneous tumors in North American Walleye
Lentiviruses	Human/simian/feline/bovine immunodeficiency viruses /HIV/SIV/FIV/BIV)	Chronic immunodeficiencies in various hosts
	Maedi-Visna virus (MVV)	Chronic interstitial pneumonia (maedi), demyelinating leukoencephalomyelitis (visna)
	Caprine arthritis encephalitis virus (CAEV)	Leukoencephalomyelitis, arthritis, occasionally chronic pneumonia
	Equine infectious anemia (EIAV)	Anemia, thrombocytopenia, fever, weight loss
Spumaviruses (foamy viruses)	Simian/feline/equine/bovine foamy virus (SFV/FFV/EFV/BFV)	No associated disease known

According to Burmeister, 2001; No malignant disease has been ascribed to lentiviruses or spumaviruses

1.7 Summary of mobile elements in the human genome

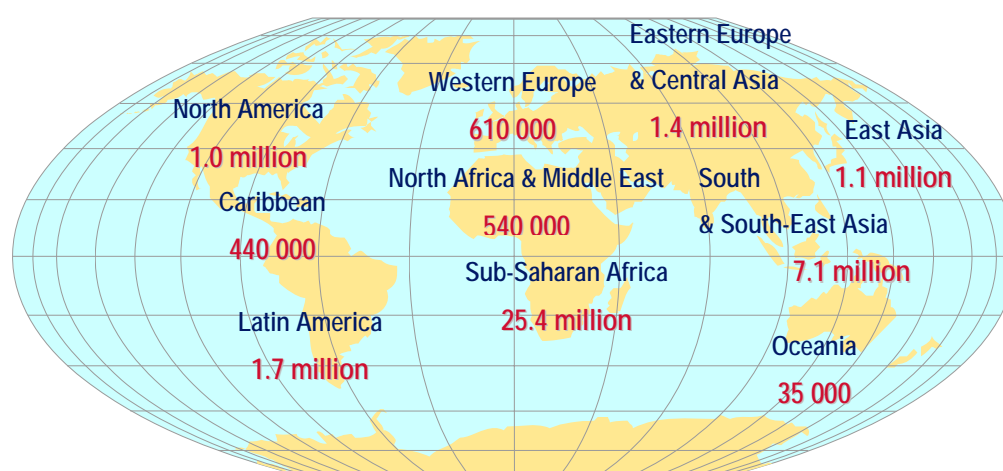
Element	Percent of the total genome	Copy number
L1 (LINE)	16.9	0.5×10^6
Alu (SINE)	10.6	1.1×10^6
L2 (LINE)	3.2	0.3×10^6
MIR (SINE)	2.5	0.46×10^6
LTR elements	8.3	0.3×10^6
DNA elements	2.8	0.3×10^6
Processed pseudogenes	<1.0	$1-2 \times 10^4$
Total	~ 45	~ 3×10^6

According to Deininger and Batzer, 2002

1.8 Endogenous and exogenous agents influencing the expression of HERVs

Agent	HERV(s)	System	Effect	Reference
Retinoid acid	HERV-R (ERV-3)	Monocytic U-927 cells	Up regulation	Larsson et al., 1997
Concanavalin	HERV-H, HERV-K (NMWV-1-3 and 5-9), HRES-1,	PBMCs	Up regulation	Krieg et al., 1992
Phorbol myristate acetate	HERV-H, HERV-K (NMWV-7),	PBMCs	Up regulation	Krieg et al., 1992
Pokeweed mitogen	HERV-R (ERV-3), HERV-H, HERV-K	PBMCs	Up regulation	Krieg et al., 1992
IFN β	HERV-W	PBMCs	Down regulation	Serra et al., 2003
Estradiol priming followed by progesterone	HERV-K	Breast carcinoma cell line T47K	Up regulation	Ono et al., 1987

1.9 Global summary of the AIDS epidemic



Source: <http://www.unaids.org>

1.10 HIV figures (worldwide)

Number of people living with HIV	Total	39.4 million	35.9-44.3 million
	Adults	37.2 million	33.8–41.7 million
	Women	17.6 million	16.3–19.5 million
	Children < 15 years	2.2 million	2.0–2.6 million
People newly infected with HIV in 2003	Total	4.9 million	4.3–6.4 million
	Adults	4.3 million	3.7–5.7 million
	Children < 15 years	640,000	570,000–750,000
AIDS deaths in 2003	Total	3.1 million	2.8–3.5 million
	Adults	2.6 million	2.3–2.9 million
	Children < 15 years	510,000	460,000–600,000

Adults and children estimated to be living with HIV as of end 2004; Source: www.unaids.org

1.11 HIV/AIDS in Germany

Persons living with HIV/AIDS (end of 2004)	~ 44,000
Men	~ 34,000
Women	~ 9,500
Children	~ 300
Persons who are living with AIDS (included in figures above)	~ 5,000
New HIV infections in 2004	~ 2,000
Men	~ 1,600
Women	~ 400
Children	~ 20
New cases of full-blown AIDS	~ 700
Men	~ 550
Women	~ 150
Children	~ <5
Cases of death among HIV-positive individuals	~ 700
Total number of HIV infected individuals since the beginning of the epidemic	~ 67,500
Total numbers of full-blown AIDS cases since the beginning of the epidemic	~ 28,000
Men	~ 24,300
Women	~ 3,600
Children	~ < 150
Total number of deaths among HIV infected individuals since the beginning of the epidemic	~ 23,500

Source: www.rki.de

1.12 Primers and probes

1.12.1 Primers and probes for housekeeping genes

Primer, probe	Sequence	Target sequence	T _a
L13 probe	5'-6FAM- CTg CCC CAC AAA ACC AAg CgA ggC C XT p	Ribosomal structural protein	60°C
L13 sense	5'-Cgg ACC gTg CgA ggT AT		
L13 reverse	5'-CAC CAT CCg CTT TTT CTT gTC		
PBGDgen sense	5'- ggg AAg ggC Agg ACT AAT CC	PBGD DNA	60°C
PBGDgen reverse	5'- ggg CTT CCC ATT AgC TTC CA		
PBGD probe	5'-6FAM-Cgg ACA gTg Tgg Tgg CAA CA XT TgAAA p	PBGD DNA, PBGD mRNA	60°C
PBGD sense	5'- ggC TgC AAC ggC ggA A	PBGD mRNA	60°C
PBGD reverse	5'- CCT gTg gTg gAC ATA gCA ATg ATT		

1.12.2 Primers and probes for retrovirus-specific quantitative PCR (exogenous sequences)

Primer, probe	Sequence	Target sequence	T _a
HIVenv s SK68i	5'-TTC TTX GGA GCA GCX GGA AGC ACX ATG G-3'	HIV <i>env</i>	60°C
HIVenv r SK69i	5'-TTM ATG CCC CAG ACX GTX AGT TXC AAC A-3'		
HIVenv probe	5'-6FAM-TGA CGC TGA CGG TAC AGG CCA GAC A-TAMRA-3'		
HTLV sense	5'-Ygg ATA CCC MgT CTA CgT gTT Tgg (C/T-gg ATA CCC A/C-gT CTA CgT gTT Tgg)	HTLV-1/2 <i>tax</i>	60°C
HTLV reverse	5'-gAg CYg AYA ACg CgT CCA TCg (gAg C-C/T-g A-C/T-A Acg CgT CCA TCg)		
HTLV tax TM	5'-6FAM-CgC CCT ACT ggC CAC CTg TCC AgA XTp		
SMRV sense	5'-CCT gCT AgT Agg ATT ggg TgT CTC T	SMRV <i>env</i>	60°C
SMRV reverse	5'-CTA CTT Cgg CTA ggg AAT CTA gTT g		
SMRV probe	5'-6FAM-TAA CgA CgT CCA AgC CTT gTC TAG CAC CA XT p		

1.12.3 Primers and probes for retrovirus-specific quantitative PCR (endogenous sequences)

Primer, probe	Sequence	Target sequence	T _a
HERV- <i>Hpol</i> sense	5'-TCC AgA ATA AAg CTg TgT CCA T		
HERV- <i>Hpol</i> reverse	5'-TTC gTA AAg CCC TgT TgC AA	HERV-H <i>pol</i>	60°C
HERV- <i>Hpol</i> probe	5'-6FAM-ACA gCC AgC CTA ATC CCT CCT CTT CC XT p		
HERV- <i>Wgag</i> sense	5'-Tgg gAC CAA TGT gAC ACT CA		
HERV- <i>Wgag</i> reverse	5'- AgC CAg gTT TCT CTC CCt Tg	HERV-W <i>gag</i>	60°C
HERV- <i>Wgag</i> -Probe	5'-6FAM-AAA CgA TTT ATA TTC TTC TgC AgT ACC gCC XT p		
MSRV/ <i>Wenv</i> -sense	5'-CCT AgC CCC TAC AAA ggA CTA g		
MSRV/ <i>Wenv</i> -reverse	5'-gCT gAg ACC TCA Tgg AgC C	MSRV <i>env</i>	63°C
MSRV/ <i>Wenv</i> probe	5'-6FAM-CTC TCA AAA CTA CAT gAA ACC CTC CgT ACC C		

1.12.4 Primers for DDRT-PCR

Primer, probe	Sequence	Target sequence	T _a		
AP1	5'- AAg CTT gAT TgC C				
AP2	5'- AAg CTT CgA CTg T				
AP3	5'- AAg CTT Tgg TCA g				
AP4	5'- AAg CTT CTC AAC g	Random	37°C-42°C		
AP5	5'- AAg CTT AgT Agg C				
AP6	5'- AAg CTT gCA CCA T				
AP7	5'- AAg CTT AAC gAg g				
AP8	5'- AAg CTT TTA CCg C				
H a	5'-ATC CgA gTC			Histidine related PBS	37°C-42°C
H i	5'- gTC AYg gCA CCA				
Lys1,2-a	5'-gCC CCA CgT Tgg			Lysine1,2 related PBS	37°C-42°C
Lys1,2-b	5'- CgT Tgg gCg CCA				
Lys3-a	5'- gTC CCT gTT Cgg	Lysine3 related PBS	37°C-42°C		
Lys3-i	5'- gTT Cgg gCg CCA				
Pro-a	5'- ATC CCg gAC gAg	Proline related PBS	37°C-42°C		
Pro-b	5'- gAC gAg CCC CCA				
W a	5'- gTC CgT TCg Tgg	Tryptophane related PBS	37°C-42°C		
W i	5'- TCg Tgg TTg CCA				

1.12.5 Primers and probes for reverse transcriptase activity assay

PCR	Sequence	Target sequence	T _a
MS2-F	5'-TCC TgC TCA ACT TCC TgT CgA g	Untranslated 5' terminal nucleotide sequence of phage MS2	60°C
MS2-R	5'-CAC Agg TCA AAC CTC CTA ggA ATg		
MS2-Probe	5'-6FAM-TCT TTA gCg AgA CgC TAC CAT ggC TA XT p		

1.12.6 Primers for cloning

Primer, probe	Sequence	Target sequence	T _a
T7	5'-gTA ATA CgA CTC ACT ATA ggg Cg	TOPO™ vector pCR®II	55°C
M13 rev	5'- CAg gAA ACA gCT ATg AC		

Wobbles: B= C/g/T; C= A/g/T; H= A/C/T; K= G/T; M= A/C; N= A/C/g/T; R= A/g; S= g/C; V= A/C/g; W= A/T; Y= C/T

1.13 Compilation of tRNAs used as primers by reverse transcriptases

tRNA used as primer	Retrovirus genus	Species	Reference
Lys3	Betaretroviruses	MMTV	Mak and Kleiman, 1997
	Lentiviruses	HIV-1*, HIV-2 SIV, FIV	Berkhout, 1997, Chakrabarti et al., 1987
		Visna	Lund et al., 2000
Lys1,2	Betaretroviruses	MPMV	Sonigo et al., 1986
		SMRV	Oda et al., 1988, Chiu et al., 1986
			HERV-K
	Spumavirus	BFV, HFV	Lund et al., 2000, Mak and Kleiman, 1997
Pro	Gammaretroviruses	MoMLV	Van Beveren, 1981, Reddy et al., 1980, Harada et al., 1979
		HERV-P	Harada et al., 1987, Kroger and Horak, 1987
	Deltraretroviruses	HTLV, BLV	Seiki, 1983
Trp	Alpharetroviruses	Rous Sarcoma virus	Swanstrom et al., 1981
		HERV-W	Blond et al., 1999
His	Epsilonretroviruses	HERV-H	Lindskog et al., 1999
		WDSV, SnRV	Vogt, 1997
Leu		Murine endogenous retroviruses	Lenz et al., 1984

tRNA used as primer	Retrovirus genus	Species	Reference
Glu	Gammaretrovirus	Murine leukemia virus AKV murine leukemia vectors**	Lund et al., 2000, Pallisgaard et al., 1989 Nikbakht et al., 1985
Pro, Gly, Gln	Retrovirus-like gene families	VL30	Itin and Keshet, 1985

* In absence of Lys3, Lys1,2, Ile, Leu, or Phe tRNA can be used (Wakefield et al., 1995, Li et al., 1994)

** In absence of tRNA^{Leu} or tRNA^{Glu}, Arg, Phe, or Ser can be used as primer tRNA (Lund et al., 2000)

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1.16 Abbreviations

1.16.1 Viruses

Abbreviation	Name
AVL	Avian leukemia virus
BaEV	Baboon endogenous retrovirus
BFV	Bovine foamy virus
BIV	Bovine immunodeficiency virus
BLV	Bovine leukemia virus
BFV	Bovine foamy virus
BMV	Brome mosaic virus
CAEV	Caprine arthritis encephalitis virus
CBV	Coxsackie B virus
CMV	Cytomegalovirus
EBV	Epstein-Barr virus
EFV	Equine foamy virus
EIAV	Equine infectious anemia virus
ENTV	Enzootic nasal tumor virus
ERV	Endogenous retrovirus
ERV-3	Endogenous retrovirus 3; HERV-R
ERV-9	Endogenous retrovirus 9
FeLV	Feline leukemia virus
FFV	Feline foamy virus
FIV	Feline immunodeficiency virus
FV	Foamy virus
GALV	Gibbon ape leukemia virus
HBV	Hepatitis B virus
HCV	Hepatitis C virus
HERV	Human endogenous retrovirus
HERV-E	Human endogenous retrovirus E
HERV-F	Human endogenous retrovirus f
HERV-I	Human endogenous retrovirus I
HERV-H	Human endogenous retrovirus H
HERV-K	Human endogenous retrovirus K
HERV-L	Human endogenous retrovirus L
HERV-P	Human endogenous retrovirus P

Abbreviation	Name
HERV-R	Human endogenous retrovirus R
HERV-S	Human endogenous retrovirus S
HERV-W	Human endogenous retrovirus W
HFV	Human foamy virus
HHV-1	Human herpes virus 1; Herpes simplex
HHV-2	Human herpes virus 2; Herpes simplex
HHV-3	Human herpes virus 3; Varicella zoster
HHV-4	Human herpes virus 4; EBV
HHV-6	Human herpes virus 6
HHV-8	Human herpes virus 8
HIV	Human immunodeficiency virus
HRES-1	HTLV related endogenous sequence 1
HRV-5	Human retrovirus 5
HSRV	Human spumaretrovirus
HSV	Herpes simplex virus
HTLV	Human T-cell lymphotropic/leukemia virus
IAP	Intracisternal Type A particles
JCV	JC virus
JSRV	Jaagsiekte sheep virus
LCMV	Lymphocytic choriomeningitis virus
MLV	Murine leukemia virus
M-MLV	Moloney murine leukemia virus
MMTV	Mouse mammary tumor virus
MoMLV	Moloney murine leukemia virus
MPMV	Mason-Pfizer monkey virus
MSRV	Multiple sclerosis associated retrovirus
MuLV	Murine leukemia virus
MVV	Maedi-Visna virus
PERV	Porcine endogenous retrovirus
PHV	Perch hyperplasia virus
RERV-H	Rabbit endogenous retrovirus H
REV	Reticuloendotheliosis virus
RGH	Retro-g human
RSV	Rous sarcoma virus

Abbreviation	Name
SFV	Simian foamy virus, Semliki forest virus
SIV	Simian immunodeficiency virus
SMRV	Squirrel monkey retrovirus
SnRV	Snakehead fish retrovirus
SRV	Simian retrovirus
STLV	Simian T cell lymphotropic/leukemia virus
SZRV	Schizophrenia associated retrovirus
TMEV	Theiler's murine encephalomyelitis virus
WDSV	Walleye dermal sarcoma virus
WEHV	Walleye epidermal hyperplasia virus

1.16.2 Miscellaneous abbreviations

Abbreviation	Denotation
°C	Degree Celsius
μL	Micro liter
μM	Micro meter
AD	Anno domini
agm	African green monkey
AID	Autoimmune disease
AIDS	Acquired immunodeficiency syndrome
ALS	Amyotrophic lateral sclerosis
AML	Acute myeloid leukemia
ANA	Antinuclear antibody
AP	Arbitrary primer
Approx.	approximately
Arg	Arginin
AS	Ankylosing spondylitis
ASCT	Autologous stem cell transplantation
ATL	Adult T cell leukemia
AZT	Azidothymidine
bp	Base pair
BC	Before Christ
BSA	Bovine serum albumin
CA	Capsid
CAH	Chronic active hepatitis
CD	Cluster of differentiation
cDNA	Copy DNA

Abbreviation	Denotation
CFS	Chronic fatigue syndrome
CIDP	Chronic-inflammatory, demyelinating polyneuropathy
CNS	Central nervous system
CREST	Calcinosis Raynaud's syndrome Esophagus Sclerodactyly Telangiectasia
CSF	Cerebrospinal fluid
ct	Cycle of threshold
CVD	Cardiovascular disease
dATP	Deoxyadenosin triphosphate
ddNTP	Dideoxyribonucleoside triphosphate
DD	Differential display
DDRT-PCR	Differential display reverse transcriptase polymerase chain reaction
DMARDs	Disease-modifying antirheumatic drugs
DLV	Delavirdin
D-MEM	Dulbecco's modified Eagle's medium
DMSO	Dimethylsulfoxide
DNA	Deoxyribonucleic acid
dNTP	Deoxyribonucleoside triphosphate
dsDNA	Double-stranded DNA
DSMZ	Deutsche Sammlung für Mikroorganismen und Zellkulturen GmbH
DTT	Dithiothreitol (1,4-dithiol-2,3-dihydroxybutan)
DZ	Dizygotic
e.g.	For example
EAE	Experimental autoimmune encephalomyelitis
EDDS	Expanded disability status scale
EDTA	Ethylene diamine tetra acetic acid
ELISA	Enzyme-linked immunosorbent assay
env	Envelope
EOMS	Early onset multiple sclerosis
et al.	Et alii
etc.	Et cetera
FCS	Fetal calf serum
Fig.	Figure
FMS	Fibromyalgia syndrome
g	Gram, gravitation
gag	Group-specific antigens
GI	Gastrointestinal
Gln	Glutamin
Glu	Glutamic acid

Abbreviation	Denotation
Gly	Glycine
GmbH	Gesellschaft mit beschränkter Haftung
gp	Glycoprotein
GWI	Gulf war illness
HAAP	HTLV associated arthropathy
HAART	Highly active antiretroviral therapy
HAM/TSP	HTLV-associated myelopathy/Tropical spastic paresis
His	Histidine
HLA	Histocompatibility antigens
HRE	Hormone responsive element
HSCT	Hematopoietic stem cell transplantation
i.e.	Id est; that is to say
IAP	Intracisternal Type A particles
IBD	Infectious bowel disease
IDDM	Insulin dependent diabetes mellitus
IFN	Interferon
Ile	Isoleucine
IN	Integrase
kb	Kilo base
L	Liter
LB	Luria-Bertani
Leu	Leucine
LINE	Long interspersed repeat sequences
log	Logarithm to the basis 10
LTR	Long terminal repeat
Lys	Lysine
M	Molarity (mol/L)
MA	Matrix
Mb	Mega base
MBP	Myelin basic protein
MC	Mixed cryoglobulinemia
MCTD	Mixed connective tissue disease
MELAS	Mitochondrial myopathy, encephalopathy, lactacidosis, stroke
Mg	Magnesium
MHC	Major histocompatibility complex
mL	Milliliter
mM	Millimolar
MM	Molecular mimicry

Abbreviation	Denotation
Mn	Manganese
MOG	Myelin oligodendrocyte protein
MRI	Magnetic resonance imaging
mRNA	Messenger ribonucleic acid
MS	Multiple sclerosis
MZ	monozygotic
NCBI	National Center for Biotechnology Information
NC	Nucleocapsid
Neuro	Neurologically
nm	Nanometer
NPSLE	Neuropsychiatric SLE
NRTI	Nucleoside reverse transcriptase inhibitors
NNRTI	Non-nucleoside reverse transcriptase inhibitors
NSAID	Nonsteroidal anti-inflammatory drug
nt	Nucleotide
nU	Nano unit
NWM	New world monkey
ORF	Open reading frame
OWM	Old world monkey
PAGE	Polyacrylamide gel electrophoresis
PBC	Primary biliary cirrhosis
PBGD	Porphobilinogen deaminase
PBMC	Peripheral blood mononuclear cells
PBMNC	Peripheral blood mononuclear cells
PBS	Primer binding site; Phosphate buffered saline
PCR	Polymerase chain reaction
PEG	Polyethylene glycol
PEI	Paul-Ehrlich-Institut
Phe	Phenylalanine
PML	Progressive multifocal leucoencephalopathy
Pol	Polymerase
PP	Primary progressive
PR	Protease
Pro	Proline
PSS	Progressive systemic sclerosis
RA	Rheumatoid arthritis
RGH	Retro-g human
RKI	Robert Koch-Institut

Abbreviation	Denotation
RNA	Ribonucleic acid
RNase	Ribonuclease
RPMI 1640	Roswell Park Memorial-Institute medium 1640
RR	Relapsing remitting
RT	Reverse transcriptase
RTA	Reverse transcriptase assay
SA	Spondylitis ankylosans
sag	Superantigen
SELDAI	SLE activity index
SINE	Short interspersed repeat sequences
SLE	Systemic lupus erythematosus
SMS	Stiff-Man-syndrome
SpA	Spondylarthropathy
SSc	Systemic sclerosis, scleroderma
SSPE	Subacute sclerosing panencephalitis
ssRNA	Single-stranded RNA
SU	Surface glycoprotein
T	Temperature
T _a	Annealing temperature
Tab.	Table
TAE	Tris-acetate-ETDA electrophoresis buffer
TBE	Tris-borate EDTA
TCID ₅₀	Tissue culture infectious dose 50
TCR	T-cell receptor
TM	Transmembrane protein
tRNA	Transfer ribonucleic acid
Trp	Tryptophan
U	unit
UDG	Uracil DNA glycosylase
UK	United Kingdom
URI	Upper respiratory tract infection
US, USA	United States of America
UV	Ultraviolet
V	Variable
vs	versus
v/v	Volume/volume
W	Watt
w/v	Weight/volume

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