

















































WHO International Biological Reference Preparations










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PREPARATION	STANDARD	MATERIAL	HELD AT	CODE	WHO/BS DOCUMENT	
 A Disintegrin And Metalloprotease with ThromboSpondin type 1 motifs 13 (ADAMTS13), plasma, Lyophilized., Function: 0.91 IU/ampoule Antigen: 0.92 IU/ampoule	1st International Standard, 2014	Blood products and related substances	NIBSC	12/252	2014.2246	
 Acellular pertussis vaccine for potency assay by modified mouse challenge test, Lyophilized, 34 IU / ampoule	1st International Standard, 2008	Vaccine	NIBSC	JNIH-3	08.2086	
 Activated coagulation factor XI, Lyophilized., 9.8 IU/ampoule	1st International Standard, 2014	Blood products and related substances	NIBSC	13/100	2014.2245	
 Activin A, human, recombinant, Lyophilized, 5 units / ampoule.	1st Reference Reagent, 1998	Recombinant hormone	NIBSC	91/626	98.1882	
 Alpha-1-antitrypsin, (2008), plasma derived, Lyophilized, 243 nmoles/ampoule, use extended for recombinant products. Assigned values of 12.4 mg/ml for both total protein and antigen.	1st International Standard, 2008	Purified plasma protein	NIBSC	05/162	08.2092	
 Alphafoetoprotein, Lyophilized, 100,000 IU / ampoule.	1st International Standard, 1975	Human cord serum	NIBSC	AFP	75.1121	
 Amphotericin B, Lyophilized, 944 IU / mg. Approximately 100 mg of Amphotericin B.	2nd International Standard, 2007	Antibiotic	EDQM	ISA_29078	07.2073	
 Ancrod, Lyophilized., 55 IU/ampoule	1st International Reference Preparation, 1976	Enzyme	NIBSC	74/581	76.1130	
 Ancrod, Lyophilized, 54 IU/ampoule	2nd International Standard, 2016	snake venom serine protease	NIBSC	15/106	2016.2282	
 Anthrax spore vaccine, Lyophilized spore suspension of Bacillus anthracis strain 34 F2., 1 IU / ampoule.	1st International Reference Preparation, 1978	Antigen	NIBSC	AxV2	78.1198	
 Anti-A and anti-B antibodies in intravenous immunoglobulin: Limit reference preparation, Lyophilized, Anti-A and anti-B titres in the 2-fold range 32-64 using direct haemagglutination of A1 and B red cells.	1st Reference Reagent, 2008	Human immunoglobulin	NIBSC	07/310	08.2091	
 Anti-A and anti-B antibodies in intravenous immunoglobulin: Positive control and negative control for haemagglutination tests, Lyophilized., The guide titres for anti-A and anti-B in the Positive Control preparation 07/306 are in the 2-fold ranges of 32-64 and 16-32, respectively. 07/308 is the Negative Control in the same assays.	1st Reference Reagent, 2008	Human immunoglobulin	NIBSC	07/306 & 07/308	08.2091	
 Anti-A and anti-B in serum and plasma for haemagglutination assays, Lyophilized., DRT titres 128 for both anti-A and anti-B, IAT titres 256 for both anti-A and anti-B	1st Reference Reagent, 2015	Human serum	NIBSC	14/300	2015.2258	
 Anti-A blood grouping minimum potency reagent, Lyophilized, A 1 in 8 dilution defines the recommended minimum potency specification for anti-A blood grouping reagents.	1st International Standard, 2005	Monoclonal IgM (murine)	NIBSC	03/188	06.2053	
 Anti-B blood grouping minimum potency reagent, Lyophilized, A 1 in 4 dilution defines the recommended minimum potency specification for anti-B blood grouping reagents.	1st International Standard, 2005	Monoclonal IgM (murine)	NIBSC	03/164	05.2024	
























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Antibodies, human, to enterovirus type 71, Lyophilized., 300 IU per ampoule	1st International Standard for anti-EV71 serum, 2015	Human serum	NIBSC	13/238	2015.2267	
Antibodies, human, to enterovirus type 71, Lyophilized., 1,000 IU per ampoule	1st International Standard for anti-EV71 serum, 2015	Human serum	NIBSC	14/140	2015.2267	
Anti-brucella abortus serum, bovine, Lyophilized, 1,000 IU / ampoule of agglutinating; 1,000 IU / ampoule of complement-fixing activity.	2nd International Standard, 1975	Ovine serum	NIBSC	BaDS	75.1124	
Anti-brucella ovis serum, ovine, Lyophilized, 1,000 IU / ampoule.	1st International Standard, 1985	Ovine serum	NIBSC	BovisDs	85.1485	
Anti-c incomplete blood typing serum, Lyophilized, 64 IU/ampoule	1st International Standard, 1976	Human serum	NIBSC	W1007	71.1038	
Anti-canine distemper serum, Lyophilized, 1,000 IU / ampoule.	1st International Standard, 1967	Horse serum	NIBSC	CDS	67.881	
Anti-canine hepatitis serum, Lyophilized, 1,000 IU / ampoule.	1st International Standard, 1967	Horse serum	NIBSC	CHS	67.880	
Anti-D (anti-Rho) minimum potency reagent, complete, Lyophilized, A 1 in 3 dilution defines the recommended minimum potency specification for low protein anti-D blood reagents; a 1 in 8 dilution defines the recommended minimum potency specification for high protein anti-D reagents.	1st International Standard, 2004	Monoclonal IgM (human)	NIBSC	99/836	04.2000 Rev. 1	
Anti-D antibodies in intravenous immunoglobulin: Positive control and negative control for haemagglutination tests, Lyophilized., The guide titre for anti-D in the Positive Control preparation 02/228 is 8; 02/226 is the Negative Control in the same assay using direct haemagglutination of A1 and B red cells.	1st Reference Reagent, 2004	Human immunoglobulin	NIBSC	02/228 & 02/226	04.2002	
Anti-D immunoglobulin, Lyophilized, 285 IU (57 µg)/ampoule	2nd International Standard, 2003	Human immunoglobulin	NIBSC	01/572	03.1962	
Anti-dengue virus type 1,2,3 and 4 serum, Freeze-dried, 100 units per serotype per ampoule.	1st Reference Reagent, 2005	Human plasma	NIBSC	02/186	05.2009	
Anti-dysentery serum (Shiga), equine, , 1 IU equivalent to 0.05 mg of dried standard serum.	1st International Standard, 1928	Horse serum	NIBSC	DY	Bull. Health Org. 4, 1935	
Anti-EBOV plasma, human, Liquid.Vial., 1 u/ml	1st International Reference Reagent, 2015	Human plasma	NIBSC	15/220	2015.2280	
Anti-hepatitis A immunoglobulin, Lyophilized, 49 IU/ampoule	2nd International Standard, 1998	Human immunoglobulin	NIBSC	W1041 97/646	98.1878	
Anti-hepatitis B immunoglobulin, Lyophilized, 100 IU/ampoule	2nd International Standard, 2008	Human immunoglobulin	NIBSC	07/164	08.2084	
Anti-hepatitis B virus "e" antigen (anti-HBe), Lyophilized, 120 IU/mL	1st International Standard, 2013	Human plasma	PEI	129095/12	2013.2229	
Anti-hepatitis B virus core antibodies (anti-HBc), Lyophilized, 50 IU/vial	1st International Standard, 2008	Human plasma	NIBSC	95/522	08.2098	
Anti-hepatitis E serum, Lyophilized, 50 units/ampoule	1st Reference Reagent, 1997	Human serum	NIBSC	95/584	97.1869	
Anti-HIV antibodies (HIV-1 subtypes A, B, C, CRF01_1AE, group O and HIV-2), Lyophilized, No unitage assigned.	1st International Reference Panel, 2006	Human plasma	NIBSC	02/210	06.2032	






























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Anti-human neutrophil antigen-1a, Lyophilized, Minimum potency with 1 in 4 dilution	1st Reference Reagent, 2011	Human plasma	NIBSC	09/284	2011.2167	
Anti-human papillomavirus [HPV] 18, Lyophilized, 8 IU when reconstituted in 0.5 mL of water	1st International Standard, 2012	Human immunoglobulin	NIBSC	10/140	2012.2191	
Anti-human platelet antigen 1 a (HPA-1 a), Lyophilized, 100 IU/ampoule	1st International Standard, 2005	Human plasma	NIBSC	03/152	05.2011	
Anti-human platelet antigen 1 a (HPA-1 a) antibodies, Lyophilized, Minimum potency with 1 in 2 dilution	1st Reference Reagent, 2007	Human plasma	NIBSC	05/106	07.2079	
Anti-human platelet antigen 3a (HPA-3a), Lyophilized, Minimum potency with 1 in 8 dilution	1st Reference Reagent, 2006	Human plasma	NIBSC	03/190	06.2033	
Anti-human platelet antigen-5b (anti-HPA-5b), Lyophilized, Minimum potency with 1 in 2 dilution	1st Reference Reagent, 2003	Human plasma	NIBSC	99/566	01.1945	
Anti-interferon alpha serum, Lyophilized, 8,000 neutralising units/ampoule.	1st International Reference Reagent, 1994	Human serum	NIAID	G037-501-572	94.1783	
Anti-interferon beta serum, Lyophilized, 1,500 neutralising units/ampoule	1st International Reference Reagent, 1994	Human serum	NIAID	G038-501-572	94.1783	
Anti-measles serum, Lyophilized, 3 IU/ampoule	3rd International Standard, 2006	Human serum	NIBSC	97/648	07.2076, 06.2031	
Anti-mycoplasma gallisepticum serum, Lyophilized, 1,000 IU / ampoule of agglutinating activity and 1,000 IU / ampoule of haemagglutination-inhibiting activity.	1st International Reference Preparation, 1969	Chicken serum	NIBSC	MgDS	69.961	
Anti-newcastle-disease serum, Lyophilized, 320 IU / ampoule.	1st International Reference Preparation, 1968	Chicken serum	NIBSC	NDS	67.878	
Anti-nuclear ribonucleoprotein serum, Lyophilized, No unitage assigned.	1st International Reference Reagent, 1983	Human serum	NIBSC	W1063	83.1390	
Anti-nuclear-factor (homogeneous) serum, Lyophilized, 100 IU/ampoule	1st International Reference Preparation, 1970	Human serum	NIBSC	66/233 (W1064)	70.1005	
Anti-parvovirus B19 (IgG) serum, Lyophilized, 77 IU/ampoule	2nd International Standard, 2003	Human serum	NIBSC	01/602	03.1960	
Anti-pertussis serum, mouse, Lyophilized, 17 units / vial of anti-pertussis toxin. 143 units / vial of anti-filamentous haemagglutinin. 30 units / vial of anti-pertactin. 32 units / vial of anti-fimbria types 2/3.	1st Reference Reagent, 1999	Mouse serum	NIBSC	97/642	99.1901	
Anti-poliovirus serum (Types 1, 2, 3), Lyophilized, 11 IU/ampoule (Type 1), 32 IU/ampoule (Type 2), 3 IU/ampoule (Type 3)	3rd International Standard, 2006	Human serum	NIBSC	82/585	06.2038	
Anti-Q-fever serum, bovine, Lyophilized, 1,000 IU / ampoule.	1st International Standard, 1954	Bovine serum	NIBSC	QF	53.230	
Anti-rabies immunoglobulin, Lyophilized, 30 IU/ampoule	2nd International Standard, 1993	Human immunoglobulin	NIBSC	RAI	93.1749	
Anti-rubella immunoglobulin, Lyophilized, 1,600 IU/vial	1st International Standard, 1996	Human immunoglobulin	NIBSC	RUBI-1-94	96.1833	








PREPARATION	STANDARD	MATERIAL	HELD AT	CODE	WHO/BS DOCUMENT
Anti-salmonella pullorum serum (Standard Form S), Lyophilized, 1,000 IU/ampoule	1st International Standard, 1973	Goat serum	NIBSC	SpDS-S2	73.1066
Anti-salmonella pullorum serum (Variant Form V), Lyophilized, 1,000 IU / ampoule.	1st International Standard, 1973	Goat serum	NIBSC	SpDS-V	73.1066
antiserum to Respiratory Syncytial Virus, lyophilised, 1000 IU/ampoule - AIM: standardization of virus neutralization methods to measure antibody levels against RSV/A in human sera	1st International Standard, 2017	Human sera	NIBSC	16/284	2017.2318 
Anti-smooth muscle serum, Lyophilized, No unitage assigned.	1st International Reference Reagent, 1983	Human serum	NIBSC	W1062	83.1390
Anti-staphylococcal P-V leucocidin serum, equine, Lyophilized, 150 IU / ampoule.	1st International Standard, 1965	Horse serum	NIBSC	SPLS	65.769
Anti-swine fever serum, Lyophilized, 1,000 IU / ampoule.	1st International Standard, 1963	Pig serum	NIBSC	SFS	62.573
Anti-syphilitic plasma IgG, Lyophilized, 0.3 IU per ampoule relative to 05/132 the 1st IS for human syphilitic plasma IgG and IgM.	2nd International Standard, 2007	Human plasma	NIBSC	05/122	07.2059 
Anti-syphilitic plasma IgG and IgM, Lyophilized, 3 IU/ampoule	1st International Standard, 2007	Human plasma	NIBSC	05/132	07.2059 
Anti-tetanus immunoglobulin, Lyophilized, 120 IU/ampoule.	1st International Standard, 1992	Human immunoglobulin	NIBSC	TE-3	92.1696
Antithrombin, Lyophilized, Functional potency - 0.95 IU/ampoule, Antigenic potency - 0.96 IU/ampoule	3rd International Standard, 2010	Human plasma	NIBSC	08/258	10.2146 
Antithrombin, concentrate, Lyophilized, Functional potency - 4.4 IU/ampoule. Antigenic potency - 4.5 IU/ampoule.	3rd International Standard, 2007	Purified plasma protein	NIBSC	06/166	07.2069 
Anti-thyroglobulin serum, Lyophilized, 1,000 IU/ampoule	1st International Reference Preparation, 1978	Human serum	NIBSC	65/093	78.1188
Anti-tick borne encephalitis serum (louping ill (Moredun) virus), Lyophilized, No unitage assigned.	1st International Reference Reagent, 1964	Sheep serum	NIBSC	TILI	64.707
Anti-tick borne encephalitis serum (Russian spring-summer (sophyn and absettarov virus), Lyophilized, No unitage assigned.	1st International Reference Reagent, 1964	Sheep serum	NIBSC	TISA	64.707
Anti-Toxoplasma gondii, human, Lyophilized., 160 IU per ampoule	4th International Standard, 2015	Human plasma	NIBSC	13/132	2015.2266 
Anti-toxoplasma serum (IgG), Lyophilized, 20 IU / ampoule.	1st International Standard, 2003	Human serum	NIBSC	01/600	03.1971 
Anti-Trypanosoma cruzi I antibody (TcI), Lyophilized, 1 IU/ml	1st International Standard, 2011	Human plasma	NIBSC	09/186	2011.2181
Anti-Trypanozoma cruzi II antibody (TcII), Lyophilized, 1 IU/ml	1st International Standard, 2011	Human plasma	NIBSC	09/188	2011.2181
anti-Typhoid capsular Vi polysaccharide Ig (human), lyophilised, 100 IU/ampoule - AIM: for anti-Vi IgG (human) in various ELISA formats used in Vi serology	1st International Standard, 2017	Human sera	NIBSC	16/138	2017.2307 
Anti-varicella zoster immunoglobulin, Lyophilized, 50 IU/ampoule	1st International Standard, 1987	Human immunoglobulin	NIBSC	W1044	87.1565





PREPARATION	STANDARD	MATERIAL	HELD AT	CODE	WHO/BS DOCUMENT	
Anti-yellow fever serum, monkey, Lyophilized, 143 IU / ampoule.	1st International Standard, 1962	Monkey serum	NIBSC	YF	62.545	
Apolipoprotein A-1, Lyophilized, 1.5 mg/vial.	1st International Reference Reagent, 1992	Human serum	CDC	SP1-01	92.1706	
Apolipoprotein B, Frozen, 1.22 mg/vial.	1st International Reference Reagent, 1993	Human serum	CDC	SP3-07	93.1721	
Arginine vasopressin, Lyophilized, 8.2 IU / ampoule.	1st International Standard, 1978	Hormone	NIBSC	77/501	78.1231	
Atrial natriuretic factor, human, Lyophilized, 2.5 IU / ampoule.	1st International Standard, 1987	Peptide hormone	NIBSC	85/669	87.1578	
Bacitracin, Lyophilized, Approximately 100 mg of zinc bacitracin (74 IU / mg).	2nd International Standard, 1964	Antibiotic	EDQM	62/003	64.681	
Basic fibroblast growth factor (bFGF, FGF-2), human, rDNA derived, Lyophilized, 1,600 IU / ampoule.	1st International Standard, 1993	Recombinant growth factor	NIBSC	90/712	93.1736	
Batroxobin, Lyophilized., 50 IU per ampoule	1st International Standard, 2016	Snake venom serine protease	NIBSC	15/140	2016.2282	
BCG vaccine, Lyophilized, 2.5 mg of semi-dry bacillary mass / 5-ml ampoule.	1st International Reference Preparation, 1965	Antigen	NIBSC	BCG	65.802	
BCG vaccine of Moreau-RJ sub-strain, Lyophilized, 3.1 million CFU and 24.69 ng ATP per ampoule	1st International Reference Reagent, 2012	Vaccines and related substances	NIBSC	10/272	2012.2200	
BCG, Danish 1331 sub-strain for viability, identity and in vivo assays, Lyophilized,	1st Reference Reagent, 2009	Bacteria	NIBSC	07/270	09.2114	
BCG, Russian BCG-I sub-strain for viability, identity and in vivo assays, Lyophilized,	1st Reference Reagent, 2010	Bacteria	NIBSC	07/274	10.2148, 09.2114	
BCG, Tokyo 172 sub-strain for viability, identity and in vivo assays, Lyophilized,	1st Reference Reagent, 2009	Bacteria	NIBSC	07/272	09.2114	
BCR-ABL translocation, four panel members Lyophilized 10%, 1%, 0.1% & 0.01%, ,	1st Reference Panel, 2009	Freeze-dried cells	NIBSC	09/138	09.2106	
Beta-2 microglobulin, Lyophilized, 100 IU / ampoule.	1st International Standard, 1985	Human serum	NIBSC	B2M	85.1501	
Beta-thromboglobulin, Lyophilized, 500 IU/ampoule.	1st International Standard, 1984	Purified plasma protein	NIBSC	83/501	84.1455	
Birch pollen extract (Betula verrucosa), Lyophilized, 100,000 IU / ampoule.	1st International Standard, 1986	Allergen	NIBSC	84/522	86.1512	
BK polyomavirus DNA, Lyophilized., 7.2 log10 IU/ mL	1st International Standard, 2015	BK Virus subtype 1b-2 in universal buffer	NIBSC	14/212	2015.2270	
Bleomycin Complex A2/B2, Lyophilized, 12 500 IU/vial	2nd International Standard, 2014	Antibiotic	EDQM	ISA_46290	2014.2236	
Bleomycin complex A2/B2, Lyophilized, 8,910 IU / ampoule.	1st International Reference Preparation, 1980	Antibiotic	EDQM	78/547	80.1276	
Blood Coagulation Factor IX Concentrate, Lyophilized., 10.5 IU per ampoule	5th International Standard, 2015	Purified plasma protein	NIBSC	14/148	2015.2261	


PREPARATION	STANDARD	MATERIAL	HELD AT	CODE	WHO/BS DOCUMENT	
 Blood coagulation factor IXa, concentrate, Lyophilized, 11.0 IU/ampoule.	1st International Standard, 1999	Recombinant protein	NIBSC	97/562	99.1916	
 Blood coagulation factor V, Lyophilized, 0.74 IU of Factor V:C per ampoule	1st International Standard, 2005	Human plasma	NIBSC	03/116	05.2007	
 Blood coagulation factor V Leiden (G1691A), human gDNA (three samples: FV wild type; FVL homozygote; FVL heterozygote), Lyophilized, No assigned value	1st International Reference Panel, 2004	Genetic material	NIBSC	04/224	04.1997	
 Blood coagulation factor VII, concentrate, Lyophilized, Chromogenic method: 9.8 IU/ampoule; Clotting method: 10.6 IU/ampoule	2nd International Standard, 2012	Purified plasma protein	NIBSC	10/252	2012.2204	
 Blood coagulation factor VIIa concentrate, human, Lyophilized, 656 IU / ampoule.	2nd International Standard, 2008	Recombinant protein	NIBSC	07/228	08.2090	
 Blood coagulation factor VIII and von Willebrand factor, Lyophilized, Factor VIII: C 0.68 IU/ amp; Factor VIII:Antigen 1.04 IU/ amp; VWF:Antigen 1.00 IU/ amp; VWF:Ristocetin cofactor 0.87 IU/amp; VWF:Collagen binding 1.03 IU/amp; VWFpp 1.03 IU/amp	6th International Standard, 2009 / VWFpp 2011	Human plasma	NIBSC	07/316	09.2116; 2011.2171	
 Blood coagulation factor VIII, concentrate, Lyophilized., 9.4 IU/ampoule	8th International Standard, 2009	Purified plasma protein	NIBSC	07/350	09.2117	
 Blood coagulation factor XI activated (FXIa), Lyophilized, 10 units/ampoule.	1st International Reference Reagent, 2012	Human plasma	NIBSC	11/236	2012.2206	
 Blood coagulation factor XI, plasma human, Lyophilized., 0.86 International Units per ampoule	1st International Standard, 2005	Human plasma	NIBSC	04/102	05.2017	
 Blood coagulation factor XIII, Lyophilized, Activity 0.91 IU/ampoule; Antigen 0.93 IU/ampoule	1st International Standard, 2004	Human plasma	NIBSC	02/206	04.1994 Rev.1	
 Blood coagulation factors II and X, concentrate, Lyophilized, FII: 9.4 IU/ampoule, FX: 8.1 IU/ampoule	4th International Standard, 2012	Purified plasma proteins	NIBSC	11/126	2012.2210	
 Blood coagulation factors II, VII, IX, X, Lyophilized, 0.89 IU (factor II), 0.99 IU (factor VII), 0.9 IU (factor IX), 0.89 IU (factor X) / ampoule.	4th International Standard, 2010 / 15	Human plasma	NIBSC	09/172	10.2145 and 15.2261	
 Bone morphogenic protein-2, human, rDNA derived, Lyophilized, 5,000 units / ampoule.	1st Reference Reagent, 1997	Recombinant cytokine	NIBSC	93/574	97.1857	
 bOPV type 1+3, lyophilised, 7.19, 6.36 and 7.32 log10 TCID50/ml for type 1, 3 and total virus content, respectively	1st International Standard, 2017	Vaccine bulk	NIBSC	16/164	2017.2313	
 Bordetella pertussis fimbrial antigen type 2 (monoclonal antibody for serotyping). Lyophilized. No assigned values, ,	1st International Standard, 2009	Cell culture suspension	NIBSC	06/124	09.2120	
 Bordetella pertussis fimbrial antigen type 3 (monoclonal antibody for serotyping). Lyophilized. No assigned values, ,	1st International Standard, 2009	cell culture suspension	NIBSC	06/128	09.2120	
 Brain derived neurotrophic factor, human, rDNA derived, Lyophilized, 16,000 units / ampoule.	1st Reference Reagent, 1997	Recombinant growth factor	NIBSC	96/534	97.1867	
 C1 esterase inhibitor, Lyophilized, 0.89 IU/ampoule	1st International Standard, 2010	Human plasma	NIBSC	08/262	10.2144	














PREPARATION	STANDARD	MATERIAL	HELD AT	CODE	WHO/BS DOCUMENT	
 C1 esterase inhibitor, concentrate, Lyophilized, 9.6 IU/ampoule	1st International Standard, 2010	Purified plasma protein	NIBSC	08/256	10.2144	
 Calcitonin, eel, Lyophilized, 88 IU / ampoule.	1st International Standard, 1989	Hormone	NIBSC	88/556	89.1620	
 Calcitonin, human, Lyophilized, 17.5 IU / ampoule.	2nd International Standard, 1991	Hormone	NIBSC	89/620	91.1675	
 Calcitonin, salmon, Lyophilized, 138 IU / ampoule.	3rd International Standard, 1999	Hormone	NIBSC	98/586	99.1906	
 Carcinoembryonic antigen (CEA), Lyophilized, 100 IU/ampoule	1st International Reference Preparation, 1975	Human carcinoma derived	NIBSC	73/601	75.1110	
 Chikungunya virus RNA, Lyophilized., 2.5 x 106 IU/mL	1st International Standard, 2017	Cell culture derived virus in human plasma	PEI	11785/16	2017.2330	
 Cholera antitoxin, goat, Lyophilized, 2,200 IU / ampoule.	1st International Standard, 1984	Goat serum	NIBSC	CHAN	84.1438	
 Cholera vaccine (Inaba), Lyophilized, 40,000,000,000 organisms / ampoule.	2nd International Reference Preparation, 1971	Antigen	NIBSC	INV	71.1032 Rev. 1	
 Cholera vaccine (Ogawa), Lyophilized, 40,000,000,000 organisms / ampoule.	2nd International Reference Preparation, 1971	Antigen	NIBSC	OGV	71.965	
 Chorionic gonadotrophin, alpha subunit, human, for immunoassay, Lyophilized, 70 IU / ampoule.	1st International Reference Preparation, 1974	Glycoprotein hormone	NIBSC	75/569	74.1094	
 Chorionic gonadotrophin, beta subunit, human, for immunoassay, Lyophilized, 70 IU / ampoule.	1st International Reference Preparation, 1974	Glycoprotein hormone	NIBSC	75/551	74.1094	
 Chorionic gonadotrophin, human, Lyophilized, 650 IU / ampoule.	4th International Standard, 1999	Glycoprotein hormone	NIBSC	75/589	99.1905	
 Chorionic gonadotrophin, Lyophilized 179 International Units or 0.39 nmol per ampoule for calibration of immunossays, and 162 International Units per ampoule for calibration of biossay, ,	5th International Standard, 2009	Native hormone purified from urine	NIBSC	07/364	09.2107	
 Ciliary Neurotrophic Factor for the bioassay of human CNTF, human, rDNA derived, Lyophilized, For bioassay: 8,000 units / ampoule; for immunoassay: 6.5 µg / ampoule.	1st Reference Reagent, 2001	Recombinant growth factor	NIBSC	94/684	01.1943	
 Clostridium botulinum type B antitoxin, equine, Lyophilized, 30.7 IU / ampoule.	2nd International Standard, 1985	Horse serum	NIBSC	BUSB	85.1469	
 Clostridium botulinum type D antitoxin, equine, Lyophilized, 1,000 IU / ampoule.	1st International Standard, 1962	Horse serum	NIBSC	61/001 (BUSD)	62.582	
 Clostridium novyi alpha toxoid, Lyophilized, No unitage assigned.	1st International Reference Preparation, 1966	Toxoid	NIBSC	CoT	70.1022	
 Clostridium perfringens beta antitoxin, equine, Lyophilized, 4,770 IU / ampoule.	2nd International Standard, 1998	Horse serum	NIBSC	2Cp BetaAt	85.1484	
 Clostridium perfringens beta toxoid, Lyophilized, No unitage assigned.	1st International Reference Preparation, 1975	Toxoid	NIBSC	CWBetatd	75.1122	
 Clostridium perfringens epsilon antitoxin, equine, Lyophilized, 1,020 IU / ampoule.	2nd International Standard, 1985	Horse serum	NIBSC	2Cp Epsilon At	85.1484	

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 Clostridium perfringens epsilon toxoid, Lyophilized, No unitage assigned.	1st International Reference Preparation, 1975	Antigen	NIBSC	CW Epsilontd	75.1122
 Colistin, Lyophilized, 20,500 IU / mg. Approximately 75 mg of colistin sulfate.	1st International Standard, 1968	Antibiotic	EDQM	65/062	68.923
 Colistin methane sulfonate, Lyophilized, 12,700 IU / mg. Approximately 75 mg of colistin methane sulfonate.	1st International Reference Preparation, 1968	Antibiotic	EDQM	66/254	68.924
 Corticotrophin (ACTH), porcine, Lyophilized, 5 IU / ampoule.	3rd International Standard, 1962	Pituitary hormone	NIBSC	59/016	62.548
 C-reactive protein, Lyophilized, 0.049 IU/ampoule	1st International Standard, 1986	Human plasma	NIBSC	85/506	86.1514
 Dengue Virus type 1 RNA, Lyophilized., 13,500 u/mL	1st International Reference Preparation, 2016	Viraemic plasma	CBER		2016.2299 
 Dengue Virus type 2 RNA, Lyophilized., 69,200 u/mL	1st International Reference Preparation, 2016	Viraemic plasma	CBER		2016.2299 
 Dengue Virus type 3 RNA, Lyophilized., 23,400 u/mL	1st International Reference Preparation, 2016	Viraemic plasma	CBER		2016.2299 
 Dengue Virus type 4 RNA, Lyophilized., Dengue Virus type 4 RNA	1st International Reference Preparation, 2016	Viraemic plasma	CBER		2016.2299 
 Dihydrostreptomycin, Lyophilized, 19,425 IU/vial.	3rd International Standard, 2011	Antibiotic	EDQM	ISA_42688	2011.2176 
 Diphtheria (schick) test toxin, Lyophilized, 900 IU / ampoule.	1st International Standard, 1954	Toxin	NIBSC	STT	54.274
 Diphtheria Antitoxin Human IgG, Lyophilized, 2 IU / ampoule	1st International Standard, 2012	Vaccines and related substances	NIBSC	10/262	2012.2192 
 Diphtheria antitoxin, equine, Lyophilized, 10 IU / ml. Bottles in the form of 10 ml of a solution of dried serum in 66% v/v of glycerol.	1st International Standard, 1934	Horse serum	NIBSC	07/200	Quart. Bull. Health Organ. 4, 1935
 Diphtheria Toxoid, Lyophilized., 1870 Lf per ampoule	3rd International Standard for Flocculation test, 2015	Antigen	NIBSC	13/212	2015.2254 
 Diphtheria toxoid, absorbed, Lyophilized, 160 IU / ampoule.	3rd International Standard, 1999	Adsorbed toxoid	NIBSC	98/560	99.1915
 Diphtheria Toxoid, absorbed, Lyophilized, 213 IU/ampoule	4th International Standard, 2009	Toxoid	NIBSC	07/216	09.2123 
 Diphtheria toxoid, for flocculation tests, Lyophilized, 1100 Lf IU / ampoule.	2nd International Standard, 2007	Toxoid	NIBSC	02/176 (DIFT)	07.2062 
 Dog hair and dander extract (Canis domesticus), Lyophilized, 100,000 IU / ampoule.	1st International Standard, 1986	Allergen	NIBSC	84/685	86.1513
 Ebola virus antibodies (antiEBOV), Lyophilized., 1.5 IU/mL	1st International Standard, 2017	Human plasma	NIBSC	15/262	2017.2316 
 Ebola virus antibodies (antiEBOV), Lyophilized.,	1st International Reference Panel, 2017	Human Plasma	NIBSC	16/344	2017.2316 



PREPARATION	STANDARD	MATERIAL	HELD AT	CODE	WHO/BS DOCUMENT	
Ebola VP40 Antigen, Lyophilized.,	1st Reference Reagent, 2016	Recombinant protein	NIBSC	Samples 3,5,8	2016.2302	
EBOV RNA NP-VP35_GP, Lyophilized., Ebola NP-VP35-GP-LVV: 7.5 Log10 Units/ml	1st International Reference Reagent, 2015	Lentiviral vector-based Ebola-RNA in universal buffer	NIBSC	15/222	2015.2279	
EBOV RNA VP40-L, Lyophilized., Ebola VP40-L-LVV: 7.7 Log10 Units/ml	1st International Reference Reagent, 2015	Lentiviral vector-based Ebola-RNA in universal buffer	NIBSC	15/224	2015.2279	
Elcatonin (Calcitonin analogue), Lyophilized, 15 IU / ampoule.	1st International Standard, 1986	Endocrinological products	NIBSC	84/614	85.1494	
Endotoxin for Limulus Amoebocyte Lysate (LAL) gelation tests, Lyophilized, 10,000 IU / vial	3rd International Standard, 2012	Endotoxin	NIBSC	10/178	2012.2193; QAS/12.501	
Epidermal growth factor (1-52), human, recombinant, Lyophilized, 1.75 µg / ampoule. No unitage assigned.	1st International Reference Reagent, 1994	Recombinant growth factor	NIBSC	91/550	94.1781	
Epidermal growth factor, human, recombinant, Lyophilized, 2,000 IU / ampoule.	1st International Standard, 1994	Recombinant growth factor	NIBSC	91/530	94.1781	
Epstein Barr virus DNA, Lyophilized, 5,000,000 IU/ml	1st International Standard, 2011	B95-8 strain formulated in universal buffer	NIBSC	09/260	2011.2172	
Erythromycin, Lyophilized, 920 IU / mg. Approximately 75 mg of erythromycin A base.	2nd International Standard, 1978	Antibiotic	EDQM	76/538	78.1228	
Erythropoietin antibody reference panel A, Lyophilized., No unitage assigned	1st Reference Panel for EPO, 2015	Human immunoglobulin	NIBSC	15/240	2015.2265	
Erythropoietin antibody reference panel B, Lyophilized., No unitage assigned	1st Reference Panel for EPO, 2015	Human immunoglobulin	NIBSC	15/242	2015.2265	
Erythropoietin Antibody Reference Panel Negative Control Antibody, Lyophilized., No unitage assigned	1st Reference Panel for EPO, 2015	Human immunoglobulin	NIBSC	13/122	2015.2265	
Erythropoietin, human, urinary, Lyophilized, 10 IU / ampoule.	2nd International Reference Preparation, 1970	Urinary hormone	NIBSC	67/343	70.1015	
Erythropoietin, rDNA-derived, Lyophilized, 1,650 IU / ampoule.	3rd International Standard, 2012	Recombinant cytokine	NIBSC	11/700	2012.2195	
Factor IX, activated (FIXa), Lyophilized., 10.5 IU/ampoule	2nd International Standard, 2017	Recombinant FIXa	NIBSC	14/316	2017.2325	
Factor X, activated (FXa), Lyophilized., 6.7 U/ampoule	1st Reference Reagent, 2017	Human plasma	NIBSC	15/102	2017.2324	
Factor XI, plasma, human, Lyophilized, Functional activity: 0.71 IU per ampoule, Antigen: 0.78 IU per ampoule	2nd International Standard, 2016	Plasma	NIBSC	15/180	2016.2281	
Factor XII, functional (FXII:C), antigen (FXII:Ag), Lyophilized., FXII:C: 0.86 IU/ampoule FXII:Ag: 0.80 IU/ampoule (assigned to WHO 2nd IS for FXI)	1st International Standard, 2017	Human plasma	NIBSC	15/180	2017.2326	
Ferritin, recombinant, Lyophilized, 6.3 µg/ampoule	3rd International Standard, 1996	Recombinant protein diluted in plasma	NIBSC	94/572	96.1838	






















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Fibrinogen, Lyophilized, 2.7 mg/ampoule	3rd International Standard, 2011	Human plasma	NIBSC	09/264	2011.2168	
Fibrinogen concentrate, Lyophilized, Clottable protein: 10.8 mg/ampoule; Total protein: 15.0 mg/ampoule	2nd International Standard, 2012	Purified plasma protein	NIBSC	09/242	2012.2208	
FMS-like tyrosine kinase 3 ligand, human, rDNA derived, Lyophilized, 1,000 units / ampoule.	1st Reference Reagent, 1997	Recombinant cytokine	NIBSC	96/532	97.1858	
Folate in whole blood, Lyophilized, 13 ng/ampoule	1st International Standard, 1996	Hemolysed blood	NIBSC	95/528	95.1806	
Follicle stimulating hormone, human, recombinant, for bioassay, Lyophilized, 126 IU / ampoule.	2nd International Standard, 2010	Recombinant hormone	NIBSC	08/282	10.2140	
Follicle stimulating hormone, human, pituitary, Lyophilized, 80 IU / ampoule.	1st International Standard, 1986	Pituitary hormone	NIBSC	83/575	86.1535	
Follicle stimulating hormone, human, recombinant for immunoassay, Lyophilized, 60 IU / ampoule.	1st International Standard, 1997	Recombinant hormone	NIBSC	92/510	97.1871	
Follicle stimulating hormone, human, urinary (Urofollitropin), for bioassay, Lyophilized, 121 IU / ampoule.	1st International Standard, 1995	Urinary hormone	NIBSC	92/512	95.1819	
Follicle-stimulating hormone and luteinising hormone human, urinary for bioassay, Lyophilized, 183 IU FSH and 177 IU LH / ampoule	5th International Standard, 2012	Urinary hormone	NIBSC	10/286	2012.2196	
Fragile X Syndrome, Human gDNA (five panel members: female wt, female pre-mutation, female full mutation, male full mutation, male pre-mutation), Lyophilized., No unitage assigned	1st International Genetic Reference Panel, 2008	Human gDNA	NIBSC	08/158	08.2094	
Gas-gangrene antitoxin (Clostridium histolyticum), equine, Lyophilized, 50 IU / ampoule.	3rd International Standard, 1971	Horse serum	NIBSC	HI	71.1034	
Gas-gangrene antitoxin (Clostridium perfringens), equine, Lyophilized, 270 IU / ampoule.	5th International Standard, 1962	Horse serum	NIBSC	PE	62.547 Rev. 1	
Gas-gangrene antitoxin, (Clostridium novyi), equine, Lyophilized, 1,100 IU / ampoule.	3rd International Standard, 1966	Horse serum	NIBSC	OE	66.803	
Gas-gangrene antitoxin, (Clostridium septicum), equine, Lyophilized, 500 IU / ampoule.	3rd International Standard, 1957	Horse serum	NIBSC	VI	57.384	
Genomic KRAS codons 12 and 13 mutations, Lyophilized., Mutation %; mutant KRAS copy number; total KRAS copy number for KRAS mutations G12A; G12C; G12D; G12R; G12S; G12V; G13D	1st International Reference Panel, 2017	Genomic DNA	NIBSC		2017.2317	
Gentamicin, Lyophilized, 31,020 IU / ampoule.	2nd International Standard, 1995	Antibiotic	EDQM	92/670	95.1811	
Glucagon, porcine, Lyophilized, 1.49 IU / ampoule.	1st International Standard, 1973	Gastrointestinal peptide	NIBSC	69/194	73.1064	
Gonadotrophin, equine serum, Lyophilized, 1,600 IU / ampoule.	2nd International Standard, 1966	Horse serum	NIBSC	62/001	66.855	
Gramicidin, Lyophilized, 1,070 IU / mg. Approximately 100 mg of Gramicidin.	2nd International Standard, 2008	Antibiotic	EDQM	ISA_28168	08.2100	








PREPARATION	STANDARD	MATERIAL	HELD AT	CODE	WHO/BS DOCUMENT	
Granulocyte colony stimulating factor, human, recombinant, Lyophilized, 10,000 IU / ampoule.	1st International Standard, 1992	Recombinant growth factor	NIBSC	88/502	92.1711	
Granulocyte-macrophage colony stimulating factor, human, recombinant, Lyophilized, 1000ng / ampoule.	2nd International Standard, 2010	Recombinant growth factor	NIBSC	09/136	10.2133	
Haemoglobin A2, raised, Lyophilized, 5.3 % (w/w) of total haemoglobin.	1st International Reference Reagent, 1993	Beta-thalassemia haemolysate derived	NIBSC	89/666	93.1754	
Haemoglobin F, raised, Lyophilized, 3.4% (w/w) of total haemoglobin.	1st International Reference Reagent, 1993	Cyanmethaemoglobin, haemolysate derived	NIBSC	85/616	93.1755	
Haemoglobincyanide, Liquid, 49.79 µmol / l.	6th International Standard, 1998	Bovine hemoglobin	NIBSC	98/708	98.1886	
Haemophilia A, intron 22 inversion, human gDNA; four samples: normal male, normal female, female carrier, affected male, Lyophilized, No assigned activity.	1st International Reference Preparation, 2008	Genetic material	NIBSC	08/160	08.2093	
Haemophilus influenza type b capsular polysaccharide, Lyophilized, 4.933 ± 0.267 mg/ampoule of polyribosyl ribitol phosphate (PRP).	1st International Standard, 2005	Antigen	NIBSC	02/208	05.2018	
Haemophilus influenzae b polyribosylribitol phosphate polysaccharide, Lyophilized., 4.904 mg/ampoule	2nd International Standard, 2014	Vaccines and related substances	NIBSC	12/306	2014.2239	
Heparin, low molecular weight, Lyophilized, Anti-Xa: 1068 IU/ampoule, Anti-lia: 342 IU/ampoule	3rd International Standard, 2012	Porcine mucosal derived	NIBSC	11/176	2012.2207	
Heparin, low molecular weight (calibrant for MW distribution), Lyophilized, No unitage. It is characterized by the final Broad Standard Table for 05/112.	2nd International Standard, 2007	Porcine mucosal heparin	NIBSC	05/112	07.2071	
Heparin, unfractionated, Lyophilized, 2,145 IU/ampoule	6th International Standard, 2009	Porcine mucosal derived	NIBSC	07/328	09.2124	
Hepatitis A vaccine, inactivated, Frozen, 100 IU / ml of immunogenic activity; 100 IU / ml of antigen content.	1st International Standard, 1999	Antigen	NIBSC	95/500	99.1914, 2011.2160	
Hepatitis A virus RNA, Lyophilized, 54,000 IU/mL	2nd International Standard, 2013	Human plasma	NIBSC	00/562	2013.2225	
Hepatitis A virus RNA (HAV RNA), Lyophilized., 4.42 log10 IU/mL	3rd International Standard, 2017	Human plasma	NIBSC	15/276	2017.2308	
Hepatitis B Surface Antigen, Lyophilized., 50 IU/ml	3rd International Standard, 2014	Other substances	NIBSC	12/226	2014.2241	
Hepatitis B virus “e” antigen (HBeAg), Lyophilized, 100 IU/mL	1st International Standard, 2013	Human serum	PEI	129097/12	2013.2228	
Hepatitis B virus DNA, Lyophilized., 850,000 IU / vial.	3rd International Standard, 2011	Human plasma	NIBSC	10/264	2011.2170	
Hepatitis B virus DNA, Lyophilized, 955,000 IU per mL	4th International Standard, 2016	Viraemic plasma	NIBSC	10/266	2016.2291	
Hepatitis B virus DNA, Genotypes A, B, C, D, E, F, G, Lyophilized, No unitage assigned	1st International Reference Panel, 2009	Human plasma	PEI	5086/08	09.2121	

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Hepatitis B virus surface antigen, fifteen panel members representing genotypes A-F and H, Lyophilized, No unitage assigned	1st International Reference Panel, 2011	Human plasma	PEI	6100/09	2011.2180	
Hepatitis B virus surface antigen, subtype adw2, genotype A, Lyophilized, 33 IU/vial.	2nd International Standard, 2003	Human plasma	NIBSC	00/588	03.1987	
Hepatitis B virus surface antigen, subtype adw2, genotype A, Lyophilized, Dilutional panel (IU/vial: 8.25; 2.06; 0.52; 0.13).	1st International Reference Panel, 2003	Human plasma	NIBSC	03/262	03.1987	
Hepatitis C Virus core antigen, Lyophilized., 3 200 IU/ml	1st International Standard, 2014	Other substances	PEI	PEI code 129096/12	2014.2247	
Hepatitis C Virus RNA, Lyophilized., 5.0 log10 IU per mL	5th International Standard, 2015	Human plasma	NIBSC	14/150	2015.2262	
Hepatitis D virus RNA, Lyophilized, 575,000 IU/mL	1st International Standard, 2013	Human plasma	PEI	7657/12	2013.2227	
Hepatitis E Virus RNA, Lyophilized.,	1st International Reference Panel for HEV Genotypes, 2015	Human plasma	PEI	8578/13	2015.2264	
Hepatitis E virus RNA, Lyophilized, 250,000 IU/ml	1st International Standard, 2011	Human plasma	PEI	10/6329	2011.2175	
Hepatocyte growth factor/scatter factor (precursor), human, Lyophilized, 2,000 IU/ampoule	1st International Standard, 1999	Recombinant growth factor	NIBSC	96/556	99.1899	
Hepatocyte growth factor/scatter factor, human, Lyophilized, 4,000 IU / ampoule.	1st International Standard, 1999	Recombinant growth factor	NIBSC	96/564	99.1899	
HIV-1 Circulating Recombinant Forms (CRFs) RNA, ten panel members consisting of CRFs and other variants, Lyophilized, No unitage assigned	1st International Reference Panel, 2013	Human plasma	NIBSC	13/214	2013.2226	
HIV-1 p24 antigen, Lyophilized, 1,000 IU/ampoule	1st International Reference Reagent, 1992	Peptide in human serum	NIBSC	90/636	92.1699	
HIV-1 RNA, Lyophilized., 5.10 log10 IU/mL	4th International Standard, 2017	Cell culture derived virus	NIBSC	16/194	2017.2314	
HIV-1 RNA, Lyophilized, 185,000 IU/ml (5.27 log10 IU/ml)	3rd International Standard, 2011	HIV-1 genotype B isolate diluted in human plasma	NIBSC	10/152	2011.2178	
HIV-1 RNA subtype reference panel (A, B, C, D, AE, F, G, AG-GH, groups N and O), Lyophilized, No unitage assigned	2nd International Reference Panel, 2012	Human plasma	NIBSC	Candidate HIV-1 NAT panel	2012.2209	
HIV-2 RNA, Lyophilized, 1000 IU/vial	1st International Standard, 2009	Human plasma	NIBSC	08/150	09.2118 Rev.1	
Holotranscobalamin Vitamin B12, Serum Folate and holo TC, Lyophilized., Assignment of an holoTC value of 107 pmol/L	1st International Standard for Vitamin B12 and folate, 2015	Human serum	NIBSC	03/178	2015.2263	
House-dust mite extract (Dermatophagoides pteronyssinus), Lyophilized, 10,000 IU / ampoule.	1st International Standard, 1983	Allergen	NIBSC	82/518	83.1417	
Human brain, CJD control, Frozen, No assignment.	1st Reference Reagent, 2003	Brain homogenate	NIBSC	NHBZ0/0005	03.1965 Rev.1	

















PREPARATION	STANDARD	MATERIAL	HELD AT	CODE	WHO/BS DOCUMENT	
Human brain, sporadic CJD, preparation 1, Frozen, No assignment.	1st Reference Reagent, 2003	Brain homogenate	NIBSC	NHBX0/0001	03.1965 Rev. 1	
Human brain, sporadic CJD, preparation 2, Frozen, No assignment.	1st Reference Reagent, 2003	Brain homogenate	NIBSC	NHBX0/0002	03.1965 Rev. 1	
Human brain, variant CJD, Frozen, No assignment.	1st Reference Reagent, 2003	Brain homogenate	NIBSC	NHBY0/0003	03.1965 Rev.1	
Human Chorionic Gonadotrophin for immunoassay of intact hCG, Lyophilized, 1.88 nmol / ampoule.	1st Reference Reagent, 2001	Hormone. Intact hCG: purified to remove nicked forms, and free subunits	NIBSC	99/688	01.1944	
Human Chorionic Gonadotrophin, for immunoassay of alpha subunit hCG (hCG-alpha), Lyophilized, 0.84 nmol / ampoule.	1st Reference Reagent, 2001	Hormone. Purified alpha subunit of hCG	NIBSC	99/720	01.1944	
Human Chorionic Gonadotrophin, for immunoassay of beta core fragment hCG (hCG-beta-cf), Lyophilized, 1.02 nmol / ampoule.	1st Reference Reagent, 2001	Hormone. hCG beta core fragment: residues beta 6-40 disulphide bonded to beta 55-92	NIBSC	99/708	01.1944	
Human Chorionic Gonadotrophin, for immunoassay of hCG beta subunit (hCG-beta), Lyophilized, 0.88 nmol/ampoule.	1st Reference Reagent, 2001	Hormone. Beta subunit of hCG, purified to remove intact dimeric hCG, alpha subunit and nicked beta subunit	NIBSC	99/650	01.1944	
Human Chorionic Gonadotrophin, for immunoassay of nicked hCG (hCG-n), Lyophilized, 0.78 nmol/ampoule.	1st Reference Reagent, 2001	Hormone. Nicked hCG: partially degraded hCG, missing peptide bonds in the beta-40-50 region	NIBSC	99/642	01.1944	
Human Chorionic Gonadotrophin, for immunoassay of nicked hCG beta subunit (hCG-beta-n), Lyophilized, 0.33 nmol/ampoule.	1st Reference Reagent, 2001	Hormone. Nicked hCG beta subunit: partially degraded beta subunit, missing peptide bonds in the beta 40-50 region	NIBSC	99/692	01.1944	
Human cytomegalovirus antibodies, IgG (antiCMV IgG), Lyophilized., 46.4 IU/vial	1st International Standard, 2017	Human plasma	PEI	A1	2017.2322	
Human cytomegalovirus DNA, Lyophilized, 5,000,000 IU/vial.	1st International Standard, 2010	Merlin strain	NIBSC	09/162	10.2138	
Human growth hormone, pituitary, Lyophilized, 4.4 IU / ampoule.	1st International Standard, 1982	Pituitary hormone	NIBSC	80/505	82.1369	
Human herpesvirus 6B DNA (HHV-6B DNA), Lyophilized., 7.75 log10 IU/mL	1st International Standard, 2017	Cell culture derived virus	NIBSC	15/266	2017.2321	
Human papillomavirus type 16 DNA, Lyophilized, 5 x 10**6 IU / ampoule	1st International Standard, 2008	DNA	NIBSC	06/202	08.2081	
Human papillomavirus type 18 DNA, Lyophilized, 5 x 10**6 IU / ampoule	1st International Standard, 2008	DNA	NIBSC	06/206	08.2081	
Human papillomavirus virus type 16, antibodies, Lyophilized, 5 International Units per ampoule	1st International Standard, 2009	Human plasma	NIBSC	05/134	09.2113	
Human proinsulin, Lyophilized, 7.0 ug/ampoule	1st International Standard, 2014	Cytokines, growth factors and endocrinological substances, and related substances	NIBSC	09/296	2014.2237	














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Human serum anti-malaria Plasmodium falciparum, Lyophilized, 100 units/ampule	1st International Reference Reagent, 2014	Vaccines and related substances	NIBSC	10/198	2014.2235	
Human serum complement components C1q, C4, C5, factor B, and whole functional complement CH50, Lyophilized, C1q : 100 IU/ampoule, C4 : 100 IU/ampoule, Factor B : 100 IU/ampoule, Whole functional complement CH50 : 100 IU/ampoule.	1st International Reference Preparation, 1980	Human serum	NIBSC	W1032	80.1281	
Human serum immunoglobulin E, Lyophilized, 13,500 IU/mL	3rd International Standard, 2013	Human serum	NIBSC	11/234	2013.2220	
Human serum immunoglobulins G, A, and M (IgG, IgA and IgM), Lyophilized, 100 IU IgG, 100 IU IgA and 100 IU IgM/ampoule.	1st International Reference Preparation, 1970	Human serum	NIBSC	67/086	70.1019	
Infliximab, Freeze-dried, 500 IU/ampoule (TNF-neutralising activity), 500 IU/ampoule (binding activity), 50ug/ampoule for use for therapeutic drug monitoring	1st International Standard, 2017	Recombinant	NIBSC	16/170	2017.2323	
Influenza H5N1 antibody (human), Lyophilized, 1,000 IU / ampoule	1st International Standard, 2008	Human serum	NIBSC	07/150	08/2085	
Influenza pandemic H1N1 virus antibody, Lyophilized, HI assay of 1,200 IU / ampoule	2nd International Standard, 2012	Human immunoglobulin	NIBSC	10/202	2012.2190	
Inhibin A, human, recombinant, Lyophilized, 150,000 IU / ampoule.	1st International Standard, 1994	Recombinant hormone	NIBSC	91/624	94.1787	
Inhibin B, Lyophilized, Immunoassay calibration 12 ng / ampoule. Bioactivity: 12 units / ampoule.	1st Reference Reagent, 2000	Immunoaffinity purified human inhibin hormone	NIBSC	96/784	00.1930	
Inhibin, porcine, Lyophilized, 2,000 IU / ampoule.	1st International Standard, 1990	Purified porcine hormone	NIBSC	86/690	90.1648	
Insulin C-peptide, Lyophilized., 8.64 µg per ampoule	1st International Standard, 2015	Human serum	NIBSC	13/146	2015.2256	
Insulin C-peptide, human, Lyophilized, 10 µg / ampoule.	1st International Reference Reagent, 1986	Synthetic C-peptide	NIBSC	84/510	86.1538	
Insulin, bovine, Hydrated crystals., 25.7 IU / mg. Approximately 50 mg / ampoule.	1st International Standard, 1986	Insulin crystals	NIBSC	83/511	86.1524	
Insulin, human, Hydrated crystals., 26 IU / mg. Approximately 50 mg / ampoule.	1st International Standard, 1986	Insulin crystals	NIBSC	83/500	86.1524	
Insulin, human, for immunoassay, Lyophilized, 3 IU / ampoule.	1st International Reference Preparation, 1974	Human insulin	NIBSC	66/304	74.1084	
Insulin, porcine, Hydrated crystals, 26 IU / mg. Approximately 50 mg / ampoule.	1st International Standard, 1986	Insulin crystals	NIBSC	83/515	86.1524	
Insulin-like growth factor I for bioassay, Lyophilized, 150 IU / ampoule.	1st International Standard, 1994	Recombinant growth factor	NIBSC	91/554	94.1770	
Insulin-like growth factor I for immunoassay, Lyophilized, 3.1 µg / ampoule.	1st Reference Reagent, 2000	Recombinant hormone	NIBSC	87/518	00.1933	
Insulin-like growth factor II, human, recombinant, Lyophilized, 5,000 units / ampoule.	1st Reference Reagent, 1999	Recombinant growth factor	NIBSC	96/538	99.1898	








PREPARATION	STANDARD	MATERIAL	HELD AT	CODE	WHO/BS DOCUMENT	
 Insulin-like Growth Factor-I (IGF-I), recombinant, human, for immunoassay, Lyophilized, 8.5 microgram / ampoule with uncertainty: 7.73-9.23 microgram / ampoule	1st International Standard, 2008	Growth factor	NIBSC	02/254	08.2095	
 Interferon alpha , human, leukocyte N3, Lyophilized, 60,000 IU / ampoule.	1st International Standard, 1999	Human cells leukocyte derived	NIBSC	95/574	99.1911	
 Interferon alpha 1/8, human, Lyophilized, 27,000 IU / ampoule.	1st International Standard, 1999	Recombinant cytokine	NIBSC	95/572	99.1911	
 Interferon alpha 2c, human, recombinant, Lyophilized, 40,000 IU / ampoule.	1st International Standard, 1999	Recombinant cytokine	NIBSC	95/580	99.1911	
 Interferon alpha consensus, human, recombinant, Lyophilized, 100,000 IU / ampoule.	1st International Standard, 1999	Recombinant cytokine	NIBSC	94/786	99.1911	
 Interferon alpha, human, leukocyte (HuIFN-a(Le)), Lyophilized, 11,000 IU / ampoule.	2nd International Standard, 1999	Human cells leukocyte derived	NIBSC	94/784	99.1911	
 Interferon alpha, human, lymphoblastoid N1 (HuIFN-alpha(Ly)), Lyophilized, 38,000 IU / ampoule.	2nd International Standard, 1999	Human cells lymphoblastoid derived	NIBSC	95/568	99.1911	
 Interferon alpha-1 (alpha-D), human, recombinant, (rHuIFN-alpha1(alphaD)), Lyophilized, 8,000 IU / ampoule.	1st International Standard, 1987	Recombinant cytokine	NIBSC	83/514	87.1552	
 Interferon alpha2a, human, recombinant (rHuIFN-alpha2 (alpha-A)), Lyophilized, 63,000 IU / ampoule.	2nd International Standard, 1999	Recombinant cytokine	NIBSC	95/650	99.1911	
 Interferon alpha2b, human, recombinant, (rHuIFN-alpha2 (alpha-2b)), Lyophilized, 70,000 IU / ampoule.	2nd International Standard, 1999	Recombinant cytokine	NIBSC	95/566	99.1911	
 Interferon beta ser-17, human, recombinant (rHuIFN-beta(ser17)), Lyophilized, 6,000 IU / ampoule.	1st International Reference Reagent, 1987	Recombinant cytokine	NIAID	Gxb02-901-535	87.1552	
 Interferon beta, human, fibroblast (HuIFN-beta), Lyophilized, 40,000 IU / ampoule.	3rd International Standard, 2003	Human cells fibroblast derived	NIBSC	00/572	03.1976	
 Interferon gamma, human, recombinant, Lyophilized, 80,000 IU / ampoule.	1st International Standard, 1994	Recombinant cytokine	NIAID	Gxg01-902-535	94.1782	
 Interferon omega, human, recombinant, , 20,000 IU / ampoule.	1st International Standard, 1999	Recombinant cytokine	NIBSC	94/754	99.1911	
 Interferon, chick, Lyophilized, 80 IU / ampoule.	1st International Reference Preparation, 1978	Chick embryo cytokine	NIBSC	67/018	78.1225	
 Interferon, murine, alpha (MuIFN-alpha), Lyophilized, 16,000 IU / ampoule.	2nd International Standard, 1987	Murine cytokine	NIAID	Ga02-901-511	87.1552	
 Interferon, murine, beta (MuIFN-beta), Lyophilized, 15,000 IU / ampoule.	2nd International Standard, 1987	Recombinant cytokine	NIAID	Gb02-902-511	87.1552	
 Interferon, murine, gamma (MuIFN-gamma), Lyophilized, 1,000 IU / ampoule.	1st International Reference Reagent, 1987	Recombinant cytokine	NIAID	Gg02-901-533	87.1552	
 Interferon, rabbit, Lyophilized, 10,000 IU / ampoule.	1st International Standard, 1978	Recombinant cytokine	NIAID	G019-902-528	78.1225	











PREPARATION	STANDARD	MATERIAL	HELD AT	CODE	WHO/BS DOCUMENT	
Interleukin-1 alpha, human, Lyophilized, 117,000 IU / ampoule.	1st International Standard, 1989	Recombinant cytokine	NIBSC	86/632	TRS 800, 1990	
Interleukin-1 beta, human, Lyophilized, 100,000 IU / ampoule.	1st International Standard, 1989	Recombinant cytokine	NIBSC	86/680	TRS 800, 1990	
Interleukin-10, human, Lyophilized, 5,000 units / ampoule.	1st Reference Reagent, 1997	Recombinant cytokine	NIBSC	93/722	97.1868	
Interleukin-11, human, Lyophilized, 5,000 units / ampoule.	1st Reference Reagent, 1996	Recombinant cytokine	NIBSC	92/788	96.1849	
Interleukin-12, human, Lyophilized, 10,000 units / ampoule.	1st Reference Reagent, 1996	Recombinant cytokine	NIBSC	95/544	96.1849	
Interleukin-13, human, Lyophilized, 1,000 units / ampoule.	1st Reference Reagent, 1996	Recombinant cytokine	NIBSC	94/622	96.1849	
Interleukin-15, human, Lyophilized, 1,000 units / ampoule.	1st Reference Reagent, 1996	Recombinant cytokine	NIBSC	95/554	96.1849	
Interleukin-17, for bioassays, Lyophilized, 10,000 units/ampoule	1st Reference Reagent, 2006	Cytokine	NIBSC	01/420	06.2039	
Interleukin-18, for bioassays, Lyophilized, 10,000 units/ampoule	1st Reference Reagent, 2006	Cytokine	NIBSC	03/200	06/2040	
Interleukin-2, human, Lyophilized, 210 IU / ampoule	2nd International Standard, 2012	Recombinant cytokine	NIBSC	86/500	2012.2194	
Interleukin-29 (Interferon Lamda 1), Lyophilized, 5,000 units / ampoule	1st International Reference Reagent, 2012	Recombinant cytokine	NIBSC	10/176	2012.2197	
Interleukin-3, human, Lyophilized, 1,700 IU / ampoule.	1st International Standard, 1994	Recombinant cytokine	NIBSC	91/510	94.1788	
Interleukin-4, human, Lyophilized, 1,000 IU / ampoule.	1st International Standard, 1994	Recombinant cytokine	NIBSC	88/656	94.1788	
Interleukin-5, human, Lyophilized, 5,000 units / ampoule.	1st Reference Reagent, 1996	Recombinant cytokine	NIBSC	90/586	96.1849	
Interleukin-6, human, Lyophilized, 100,000 IU / ampoule.	1st International Standard, 1992	Recombinant cytokine	NIBSC	89/548	92.1713	
Interleukin-7, human, Lyophilized, 100,000 units / ampoule.	1st Reference Reagent, 1996	Recombinant cytokine	NIBSC	90/530	96.1849	
Interleukin-8, human, Lyophilized, 1,000 IU / ampoule.	1st International Standard, 1995	Recombinant cytokine	NIBSC	89/520	95.1820	
Interleukin-9, human, Lyophilized, 1,000 units / ampoule.	1st Reference Reagent, 1996	Recombinant cytokine	NIBSC	91/678	96.1849	
Islet cell antibodies, Lyophilized, 20 units/ampoule of islet cell antibodies; 100 units/ampoule of anti-GAD65; 100 units/ampoule of anti-IA-2.	1st Reference Reagent, 1999	Human serum	NIBSC	97/550	99.1896	
JAK2 V617F, Lyophilized., 0; 0.03; 1.00; 10.8; 29.6; 89.5; 100 % JAK2 V617F	1st Reference Reagent, 2016	Genomic DNAs with 0; 0.03; 1.00; 10.8; 29.6; 89.5; 100 % JAK2 V617F	NIBSC		2016.2293	
JC polyomavirus DNA, Lyophilized., 7.0 log10 IU/ mL	1st International Standard, 2015	JC Virus strain 1A in universal buffer	NIBSC	14/114	2015.2259	
Kanamycin, Lyophilized, 10,345 IU / ampoule.	1st International Standard, 1986	Antibiotic	EDQM	83/521	86.1515	
Keratinocyte growth factor, human, Lyophilized, 4000 units of KGF per ampoule.	1st Reference Reagent, 2005	Recombinant growth factor	NIBSC	03/150	05.2027	


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 Keratinocyte growth factor, human (24-163), Lyophilized, 9000 units of KGF per ampoule.	1st Reference Reagent, 2005	Recombinant growth factor	NIBSC	03/148	05.2027	
 Leptin, human, Lyophilized, 4,000 IU / ampoule.	1st International Standard, 1999	Recombinant/ E.Coli	NIBSC	97/594	99.1900	
 Leptin, mouse, Lyophilized, 4,000 IU / ampoule.	1st International Standard, 1999	Recombinant/ E.Coli	NIBSC	97/626	99.1900	
 Leukaemia inhibitory factor, human, Lyophilized, 10,000 units / ampoule.	1st Reference Reagent, 1996	Recombinant cytokine	NIBSC	93/562	96.1850	
 Lipoprotein (a), Lyophilized, 0.107 nanomoles/vial	1st Reference Reagent, 2003	Human serum	CDC	IFCC SRM 2B	03.1979	
 Lupus anticoagulant, Lyophilized, 12/148 Lupus negative 12/150 Lupus moderate positive, 12/152 Lupus strong positive	1st International Reference Panel, 2014	Blood products and related substances	NIBSC	13/172	2014.2244	
 Lupus anti-dsDNA, Lyophilized., 100 U/ampoule	1st Reference Reagent, 2017	Human Plasma	NIBSC	15/174	2017.2306	
 Luteinizing hormone, bovine, for immunoassay, Lyophilized, 0.025 IU / ampoule.	1st International Standard, 1985	Pituitary hormone	NIBSC	98/566	85.1474	
 Luteinizing Hormone, human pituitary, Lyophilized, 33 IU/ampoule	3rd International Standard, 2014	Human hormone	NIBSC	81/535	2014.2240	
 Luteinizing hormone, human, pituitary, Lyophilized, 35 IU / ampoule.	2nd International Standard, 1988	Pituitary hormone	NIBSC	80/552	88.1604	
 Luteinizing hormone, human, pituitary, alpha subunit, Lyophilized, 10 IU / ampoule.	1st International Standard, 1984	Pituitary hormone	NIBSC	78/554	84.1443	
 Luteinizing hormone, human, pituitary, beta subunit, Lyophilized, 10 IU / ampoule.	1st International Standard, 1984	Pituitary hormone	NIBSC	78/556	84.1443	
 Lysine vasopressin, Lyophilized, 7.7 IU / ampoule.	1st International Standard, 1978	Synthetic hormone	NIBSC	77/512	78.1230	
 Macrophage colony stimulating factor, human (CSF-1), Lyophilized, 60,000 IU / ampoule.	1st International Standard, 1992	Recombinant growth factor	NIBSC	89/512	92.1712	
 MAPREC analysis of Poliovirus type 1 (100% 480A/525C control), Liquid frozen 82.5% 480A,525C/vial, ,	1st Reference Reagent, 2009	Virus suspension	NIBSC	00/410	09.2103	
 MAPREC analysis of Poliovirus type 1, (High mutant virus reference), Liquid frozen 2.56% 480A,525C/vial, ,	1st Reference Reagent, 2009	Virus suspension	NIBSC	00/422	09.2103	
 MAPREC analysis of Poliovirus type 1, (Low mutant virus reference), Liquid frozen 1.84% 480A,525C/vial, ,	1st Reference Reagent, 2009	Virus suspension	NIBSC	00/416	09.2103	
 MAPREC analysis of poliovirus type 3 (Sabin), Lyophilized, 0.9% 472-C nucleotide / vial.	1st International Standard, 1996	Chemically synthesized DNA	NIBSC	95/542	96.1841	
 MAPREC analysis of poliovirus type 3 (Sabin), high virus reference, Lyophilized, 1.1% 472-C nucleotide / vial.	1st Reference Reagent, 1997	Chemically synthesized DNA	NIBSC	96/578	97.1865	
 MAPREC analysis of poliovirus types 3 (Sabin), low virus reference, Lyophilized, 0.7% 472-C nucleotide / vial.	1st Reference Reagent, 1997	Chemically synthesized DNA	NIBSC	96/572	97.1865	

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MAPREC assay for poliovirus type 2, Lyophilized, 0.67% 481-G per ampoule.	1st International Standard, 2003	Chemically synthesized DNA	NIBSC	97/758	03.1957	
MAPREC assay of poliovirus type 2 (481-G control), Lyophilized, 93.5% 481-G per ampoule.	1st Reference Reagent, 2003	Chemically synthesized DNA	NIBSC	98/524	03.1957	
MAPREC assay of poliovirus type 2 (high mutant virus), Lyophilized, 1.21% 481-G per ampoule.	1st Reference Reagent, 2003	Chemically synthesized DNA	NIBSC	98/596	03.1957	
MAPREC assay of poliovirus type 2 (low mutant virus), Lyophilized., 0.65% 481-G per ampoule.	1st Reference Reagent, 2003	Chemically synthesized DNA	NIBSC	97/756	03.1957	
Measles vaccine (live), Lyophilized, 4.3 log ₁₀ (20 000) infectious units / vial.	2nd International Reference Reagent, 1994	Attenuated measles virus	NIBSC	92/648	94.1771	
Meningococcal Serogroup A Polysaccharide, Lyophilized., 0.845 ± 0.043 mg MenA PS per ampoule	1st International Standard, 2015	Antigen	NIBSC	13/246	2015.2255 Add1	
Meningococcal serogroup X Polysaccharide, Lyophilized., 0.776 ± 0.089 mg MenX PS per ampoule	1st International Standard, 2015	Antigen	NIBSC	14/156	2015.2255 Add1	
mOPV type 1, lyophilised, 7.32 log ₁₀ TCID ₅₀ /ml	1st International Standard, 2017	Vaccine bulk	NIBSC	16/196	2017.2313	
mOPV type 2, lyophilised, 6.74 log ₁₀ TCID ₅₀ / ml	1st International Standard, 2017	Vaccine bulk	NIBSC	15/296	2017.2313	
mOPV type 3, lyophilised, 6.66 log ₁₀ TCID ₅₀ /ml	1st International Standard, 2017	Vaccine bulk	NIBSC	16/202	2017.2313	
Mumps vaccine (live), Lyophilized, 4.6 log ₁₀ (40000) infectious units / vial.	1st International Reference Reagent, 1994	Attenuated mumps virus	NIBSC	90/534	94.1772	
Mycobacterium bovis BCG vaccine (Danish strain) Lyophilized. 72.9 million colony forming units or 56.06 ng ATP per ampoule, ,	1st Reference Reagent, 2009	Antigen	NIBSC	07/270	09.2114	
Mycobacterium bovis BCG vaccine (Moscow I strain) Lyophilized. 3.39 colony forming units or 7.52 ng ATP per ampoule, ,	1st Reference Reagent, 2009	Antigen	NIBSC	07/274	09.2114	
Mycobacterium bovis BCG vaccine (Tokyo strain) Lyophilized. 49.37 million colony forming units or 217.60 ng ATP per ampoule, ,	1st Reference Reagent, 2009	Antigen	NIBSC	07/272	09.2114	
Mycoplasma DNA, for assays designed for generic mycoplasma detection, Lyophilized, 200,000 IU/mL	1st International Standard, 2013	Culture medium	PEI	8293/13	2013.2222	
Neisseria meningitidis serogroup C polysaccharide, Lyophilized., 1.192 mg ± 0.192 MenC PS/ampoule	1st International Standard, 2011	Antigen	NIBSC	08/214	2011.2169	
Neomycin, Lyophilized, Anti-microbiological activity of 19 050 IU / vial	3rd International Standard, 2012	Antibiotic	EDQM	ISA/011	2012.2202	
Neomycin B, Lyophilized, Anti-microbiological activity of 17 640 IU / vial	2nd International Standard, 2012	Antibiotic	EDQM	ISA/46104	2012.2201	
Nerve growth factor, human, Lyophilized, 10,000 units / ampoule.	1st Reference Reagent, 1996	Recombinant growth factor	NIBSC	93/556	96.1836	
Netilmicin, Lyophilized, 4,810 IU / ampoule.	1st International Standard, 1989	Antibiotic	EDQM	83/577	89.1628	









PREPARATION	STANDARD	MATERIAL	HELD AT	CODE	WHO/BS DOCUMENT	
Newcastle disease vaccine (inactivated), Lyophilized, 525 IU / ampoule.	1st International Standard, 1963	Antigen	NIBSC	NVIA	63.626	
Nystatin, Lyophilized, 5710 IU / mg. Approximately 100 mg of Nystatin	3rd International Standard, 2007	Antibiotic	EDQM	ISA_29384	07.2072	
Oncostatin M, human, Lyophilized, 25,000 units / ampoule.	1st Reference Reagent, 1996	Recombinant cytokine	NIBSC	93/564	96.1851	
Opacity, , 10 IU of opacity.	5th International Standard, 1975	Miscellaneous	NIBSC	76/522	75.1119	
Oxytocin, Lyophilized, 12.5 IU / ampoule.	4th International Standard, 1978	Synthetic oxytocin peptide	NIBSC	76/575	78.1227	
Parathyroid hormone 1-34, recombinant, human, Lyophilized, 0.89 mg / ampoule; 8900 IU / ampoule.	1st International Standard, 2007	Recombinant hormone	NIBSC	04/200	07.2063	
parathyroid hormone 1-34, recombinant, human, lyophilised, 0.914 mg/ampoule; 9140 IU/ampoule	2nd International Standard, 2017	Recombinant	NIBSC	15/304	2017.2312	
Parathyroid hormone 1-84, human Lyophilized 100 ug per ampoule, ,	1st International Standard, 2009	Recombinant protein	NIBSC	95/646	09.2115	
Parathyroid hormone, bovine, Lyophilized, 39 IU / ampoule.	1st International Standard, 1985	Parathyroid peptide hormone	NIBSC	82/632	85.1490	
Parathyroid hormone, human, for immunoassay, Lyophilized, 0.1 IU / ampoule.	1st International Reference Preparation, 1981	Parathyroid peptide hormone	NIBSC	79/500	81.1315	
Parvovirus B19 DNA, Lyophilized, 1,410,000 IU/mL	3rd International Standard, 2013	Parvovirus B19 positive donation diluted in plasma	NIBSC	12/208	2013.2224	
Parvovirus B19 DNA, Genotypes 1,2,3a, negative control, Liquid frozen, No unitage assigned	1st International Reference Panel, 2009	Human plasma	NIBSC	09/110	09.2122	
Pegylated Granulocyte Colony Stimulating Factor (Peg G-CSF), Lyophilized, 10,000 IU/ampoule	1st International Standard, 2013	Recombinant cytokine	NIBSC	12/188	2013.2218	
Pertussis antiserum (human), anti-PT IgG, Lyophilized, 335 IU and anti-PT IgA 65 IU / ampoule; anti-FHA IgG 130 IU and anti-FHA IgA 65 IU / ampoule; anti-69K IgG 65 IU and anti-PT IgA 42 IU / ampoule	1st International Standard, 2008	Human serum	NIBSC	06/140	08.2083	
Pertussis serotype 2, typing serum (anti-Bordetella pertussis fimbriae), , No assigned value.	1st Reference Reagent, 2004	Monoclonal IgG (mouse)	NIBSC	04/154	04.1998	
Pertussis serotype 3, typing serum (anti-Bordetella pertussis fimbriae), Frozen, No assigned value.	1st Reference Reagent, 2004	Monoclonal IgG (mouse)	NIBSC	04/156	04.1998	
Pertussis Toxin, lyophilised, 1,881 IU/ampoule (histamine sensitization test)	2nd International Standard, 2017	Vaccine bulk	NIBSC	15/126	2017.2315	
Pertussis toxin, purified, Lyophilized, 10000 IU / ampoule.	1st International Standard, 2003	Toxin	NIBSC	JNIH-5	03.1978	
Pertussis vaccine (whole cell) 41S, Lyophilized, 40 IU / ampoule.	4th International Standard, 2006	Inactivated bordetella pertussis	NIBSC	94/532	06.2036	
Placental lactogen, human, for immunoassay, Lyophilized, 0.000 850 IU / ampoule.	1st International Reference Preparation, 1977	Purified placental protein	NIBSC	73/545	77.1141	
Plasmin, Lyophilized, 5.3 IU/ampoule.	3rd International Standard, 1998	Human plasma protein	NIBSC	97/536	98.1887	

PREPARATION	STANDARD	MATERIAL	HELD AT	CODE	WHO/BS DOCUMENT	
Plasmin, Lyophilized., 8.0 IU/ampoule	4th International Standard, 2014	Blood products and related substances	NIBSC	13/206	2014.2249	
Plasminogen-Activator Inhibitor 1 (PAI-1), Lyophilized, Tissue-plasminogen-activator: 27.5 IU of neutralising activity/ampoule. Urinary-plasminogen-activator: 7 IU of neutralising activity/ampoule.	1st International Standard, 1995	Recombinant protein [Chinese Hamster Ovary cells (CHO)], spiked in human plasma	NIBSC	92/654	95.1805	
Plasmodium falciparum antigen, Lyophilized., HRP2: 1000 IU/ampoule pLDH: 1000 IU/ampoule	1st International Standard, 2017	Culture derived parasites in buffer	NIBSC	16/376	2017.2329	
Plasmodium falciparum DNA, Lyophilized, 500,000,000 IU/vial.	1st International Standard, 2006	Human blood	NIBSC	04/176	06.2035	
Platelet derived growth factor-BB isoform, human, Lyophilized, 3,000 IU / ampoule.	1st International Standard, 1997	Recombinant growth factor	NIBSC	94/728	97.1864	
Platelet factor 4, Lyophilized, 400 IU/ampoule	1st International Standard, 1984	Human platelet protein	NIBSC	83/505	84.1455	
Pneumococcal Serum, Lyophilized., Type 1, 8.50 microgram/mL; Type 3, 1.45; Type 4, 3.33; Type 5, 7.51; Type 6A, 3.93; Type 6B, 9.05; Type 7F, 8.30; Type 9V, 6.44; Type 14, 37.99; Type 18C, 7.30; Type 19A 13.87; Type 19F, 14.61; Type 23F 5.95	1st International Standard, 2011	Human serum	NIBSC	007sp	2011.2164	
Poliomyelitis vaccine, oral, Frozen, 7.51 log ₁₀ TCID ₅₀ /ml poliovirus type 1. 6.51 log ₁₀ TCID ₅₀ /ml poliovirus type 2. 6.87 log ₁₀ TCID ₅₀ /ml poliovirus type 3. 7.66 log ₁₀ TCID ₅₀ /ml total poliovirus content.	2nd International Standard for potency testing, 2004	Antigen	NIBSC	02/306	04.1992	
Polymyxin B , 8,403 IU / mg. Approximately 75 mg of purified polymyxin B sulfate.	2nd International Standard, 1969	Antibiotic	EDQM	67/301	69.990	
Prader Willi & Angelman Syndromes: six panel members Freeze-dried No unitage assigned, ,	1st International Reference Panel, 2009	Human Genomic DNA	NIBSC	09/140	09.2105	
Prekallikrein activator, Lyophilized, 29 IU/ampoule	2nd International Standard, 2003	Purified from human plasma	NIBSC	02/168	03.1974	
Proinsulin, bovine, for immunoassay, Lyophilized, 25 µg / ampoule.	1st International Standard, 1986	Pancreatic enzyme	NIBSC	84/514	86.1534	
Proinsulin, human, Lyophilized, 6 µg / ampoule.	1st International Reference Reagent, 1986	Recombinant proinsulin	NIBSC	84/611	86.1537	
Proinsulin, porcine, for immunoassay, Lyophilized, 20 µg / ampoule.	1st International Standard, 1986	Pancreatic enzyme	NIBSC	84/528	86.1534	
Prolactin, human, Lyophilized., 0.053 IU / ampoule.	3rd International Standard, 1988	Pituitary hormone	NIBSC	84/500	86.1520	
Prolactin, human pituitary, Lyophilized, 67 mIU / ampoule.	4th International Standard, 2016	Pituitary hormone	NIBSC	83/573	2016.2292	
Prolactin, recombinant human, for immunoassay, Lyophilized, Nominal content for immunization calibration: 24.5 µg / ampoule; for bioassay calibration: 1,400 mU / ampoule.	1st Reference Reagent, 2001	rDNA derived prolactin	NIBSC	97/714	01.1942	
Prolactin, recombinant human, glycosylated form, for immunoassay, Lyophilized, Nominal content for immunization calibration: 5.5 µg / ampoule; for bioassay calibration: 88 mU / ampoule.	1st Reference Reagent, 2001	Recombinant hormone	NIBSC	98/580	01.1942	

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 Prolactin, recombinant human, non-glycosylated form, for immunoassay, Lyophilized, 10.5 µg / ampoule; for bioassay: 670 mU / ampoule.	1st Reference Reagent, 2001	rDNA derived prolactin, non-glycosylated form	NIBSC	98/582	01.1942	
 Prostate specific antigen, Lyophilized, 1 µg total PSA per vial	1st Reference Reagent, 1999	Seminal plasma-derived	NIBSC	96/668	99.1902, 2011.2161	
 Prostate specific antigen (90:10), Lyophilized, 1 µg total PSA per vial.	1st Reference Reagent, 1999	Seminal plasma-derived	NIBSC	96/670	99.1902	
 Protein C, Lyophilized, 0.85 IU/ampoule (function), 0.84 IU/ampoule (antigen).	2nd International Standard, 2006	Human plasma	NIBSC	02/342	06.2045	
 Protein C, concentrate, human, Lyophilized, 14.3 IU/ampoule (antigen), 15.0 IU/ampoule (functional activity by chromogenic assay).	1st International Standard, 2007	Purified plasma protein	NIBSC	04/252	07.2067	
 Protein S, Lyophilized, 0.83 IU/ampoule (total antigen), 0.81 IU/ampoule (free antigen), 0.77 IU/ampoule (function).	2nd International Standard, 2006	Human plasma	NIBSC	03/228	06.2046	
 Prothrombin Mutation G20210A; three samples: wild type, homozygote, heterozygote, Lyophilized, No assigned activity.	1st International Genetic Reference Panel, 2005	Genetic material	NIBSC	05/130	05.2022	
 Rabies vaccine, Lyophilized, 8 IU / ampoule for the in vivo mouse challenge assay; 3.3 IU glycoprotein antigen / ampoule for in vitro assays.	6th International Standard, 2008	Vaccine	NIBSC	07/162 (RAV)	08.2087	
 RBC1, RBC4, RBC5, RBC12 blood group genotyping alleles, Lyophilized, No unitage assigned	1st Reference Panel, 2011	Genomic DNA	NIBSC	10/232, 10/234, 10/236, 10/238	2011.2166	
 Recombinant Human Luteinizing hormone, Lyophilized, 189 IU / ampoule.	1st International Standard, 2003	Recombinant hormone	NIBSC	96/602	03.1983	
 Recombinant Serum Transferrin Receptor (rsTfR), Lyophilized, 21.7mg/L (303 nmol/L)	1st Reference Reagent, 2009	Recombinant protein	NIBSC	07/202	09.2104	
 Renin, human, Lyophilized, 0.1 IU / ampoule.	1st International Reference Preparation, 1974	Kidney extract derived	NIBSC	68/356	74.1089	
 RHD/SRY DNA, minimum sensitivity reagent, Lyophilized, 1 in 2 dilution defines the recommended minimum dilution at which both RHD and SRY should be detected	1st Reference Reagent, 2010	Human plasma	NIBSC	07/222	10.2149	
 Rheumatoid arthritis serum, Lyophilized, 100 IU/ampoule	1st International Reference Preparation, 1973	Human serum	NIBSC	W1066	73.1067	
 Rifamycin SV, Lyophilized, 887 IU / mg. Approximately 100 mg of sodium Rifamycin SV.	1st International Reference Preparation, 1967	Antibiotic	EDQM	66/231	67.885	
 Rituximab, lyophilised, in vitro biological activities: 1,000 IU/ampoule (CDC activity), 1,000 IU/ampoule (ADCC activity), 1,000 IU/ampoule (cell-binding activity), 1,000 IU/ampoule (apoptotic activity)	1st International Standard, 2017	Recombinant	NIBSC	14/210	2017.2309	
 Rubella vaccine (live), Lyophilized, 3.9 log ₁₀ (8 000) infectious units / vial.	1st International Reference Reagent, 1994	Attenuated rubella virus	NIBSC	91/688	94.1773	

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Serum amyloid A protein, Lyophilized, 0.15 IU/ampoule.	1st International Standard, 1997	Human serum	NIBSC	92/680	97.1860
Sex hormone binding globulin (SHBG), Lyophilized, 180 IU / ampoule.	2nd International Standard, 2010	Human serum	NIBSC	08/266	10/2141 
Short ragweed pollen extract (Ambrosia elatior), Lyophilized, 100,000 IU / ampoule.	1st International Standard, 1983	Defatted short ragweed pollen	NIBSC	84/581	83.1412
Sisomicin, Lyophilized, 35,200 IU / ampoule.	1st International Standard, 1984	Antibiotic	EDQM	80/543	84.1434
Smallpox vaccine, Lyophilized, 14 mg / ampoule.	1st International Standard, 1962	Antigen	NIBSC	SMV	61.536
Somatropin (rDNA-derived human growth hormone), Lyophilized, 1.95 mg protein / ampoule.	2nd International Standard, 2000	Recombinant hormone / E.coli	NIBSC	98/574	00.1929, 10.2135 (URL link) 
Spiramycin, Lyophilized, 3,200 IU / mg. Approximately 50 mg.	1st International Reference Preparation, 1964	Antibiotic	EDQM	62/008	64.692
Staphylococcus-alpha antitoxin, equine, Lyophilized, 220 IU / ampoule.	3rd International Standard, 1982	Horse serum	NIBSC	STA	82.1345
Stem cell factor, human, Lyophilized, 1,000 units / ampoule.	1st Reference Reagent, 1997	Recombinant cytokine	NIBSC	91/682	97.1859
Streptodornase, Lyophilized, 3,200 IU/ampoule	2nd International Standard, 2009	Streptococcus haemolyticus enzyme	NIBSC	08/230	09.2112 
Streptokinase, Lyophilized, 1,030 IU/ampoule	3rd International Standard, 2001	Purified from streptococcus hemolyticus culture	NIBSC	00/464	01.1948
Streptomycin, Lyophilized, 78,500 IU / ampoule.	3rd International Standard, 1980	Antibiotic	EDQM	76/539	80.1273
Streptomycin, Lyophilized., 76 000 IU/vial	4th International Standard, 2015	Antibiotic	EDQM	ISA55821	2015.2277 
Swine erysipelas serum (anti-N), Lyophilized, 628 IU / ampoule.	1st International Standard, 1954	Horse serum	NIBSC	SES	54.297
Teicoplanin, Lyophilized, 51,550 IU / ampoule.	1st International Standard, 1990	Antibiotic	EDQM	90/704	90.1642
Tetanus toxoid (absorbed) for potency assay, Lyophilized, 490 IU / ampoule.	4th International Standard, 2010	Toxoid	NIBSC	08/218	10.2150 
Tetanus toxoid, for flocculation tests, Lyophilized, 690 Lf / ampoule.	2nd International Standard, 2010	Toxoid	NIBSC	04/150 (TEFT)	07.2061, 10.2136 
Tetracosactide, Lyophilized, 490 IU / ampoule.	1st International Reference Preparation, 1981	Synthetic peptide	NIBSC	80/590	81.1313
Thrombin, human, Lyophilized, 110 IU/ampoule	2nd International Standard, 2003	Purified plasma protein	NIBSC	01/580	03.1955 
Thromboplastin, human, recombinant plain, Lyophilized, ISI value of 1.11	5th International Standard, 2016	Recombinant protein and mixed phospholipids	NIBSC	14/001	2016.2294 
Thromboplastin, human, recombinant plain, Lyophilized. International Sensitivity Index: 1.082, ,	4th International Standard, 2009	Recombinant protein and mixed phospholipids	NIBSC	08/144	09.2125 

PREPARATION	STANDARD	MATERIAL	HELD AT	CODE	WHO/BS DOCUMENT	
Thromboplastin, rabbit, plain, Lyophilized., International Sensitivity Index (ISI) value of 1.15.	3rd International Standard, 2005	Brain-derived	NIBSC	RBT/05	05.2029	
Thromboplastin, rabbit, plain, Lyophilized, ISI value of 1.21	5th International Standard, 2005	Brain-derived	NIBSC	15/001	05.2029	
Thyroid stimulating hormone, human, for immunoassay, Lyophilized, 11.5 x -3 log 10 IU / ampoule.	3rd International Standard, 2003	Pituitary hormone	NIBSC	81/565	03.1975	
Thyroid-stimulating antibody, Lyophilized, 0.113 IU / ampoule.	2nd International Standard, 2010	Human serum	NIBSC	08/204	10.2142	
Thyroid-stimulating hormone, human, recombinant, Lyophilized, 0.0067 units / ampoule.	1st Reference Reagent, 1996	Recombinant hormone, [Chinese Hamster Ovary cells (CHO)]	NIBSC	94/674	96.1843	
Thyroxine-binding globulin, Lyophilized, 30 IU / ampoule.	1st International Standard, 1991	Human serum derived	NIBSC	88/638	91.1671	
Timothy (Phleum pratense) pollen extract, Lyophilized, 100,000 IU / ampoule.	1st International Standard, 1983	Phleum pratense allergenic extract	NIBSC	82/520	83.1411	
Tissue Plasminogen Activator (t-PA), human, recombinant, Lyophilized, 10,000 IU/ampoule.	3rd International Standard, 1999	r-tPA. [Chinese Hamster Ovary cells (CHO)]	NIBSC	98/714	99.1913	
Tissue plasminogen activator antigen in plasma, Lyophilized, 25 ng/ml.	1st International Standard, 2007	Human plasma	NIBSC	94/730	07.2068	
TNF-related apoptosis inducing ligand, Lyophilized, 10,000 units / ampoule.	1st Reference Reagent, 2007	Recombinant cytokine human	NIBSC	04/166	07.2058	
Tobramycin, Lyophilized, 9,800 IU / ampoule.	2nd International Standard, 1985	Antibiotic	EDQM	82/510	85.1504	
Toxiplasma gondii NAT assay, Lyophilized., 1x10 ⁶ IU/ml	1st International Standard, 2014	Other substances	NIBSC	10/242	2014.2248	
Transforming Growth Factor-BETA 3 (Human, rDNA derived TGF-β 3), Lyophilized., 19,000 IU/ampoule	1st International Standard, 2011	Recombinant growth factor	NIBSC	09/234	2011.2163	
Trivalent inactivated polio vaccine (TIPV) for D antigen assay, Lyophilized, 277 DU/ml for poliovirus type 1; 65 DU/ml for poliovirus type 2; 248 DU/ml for poliovirus type 3	3rd International Standard, 2013	Inactivated polioviruses	NIBSC	12/104	2013.2217	
Tuberculin, old, Liquid, 90,000 IU / ml.	3rd International Standard, 1965	Mycobacterium tuberculosis culture derived	NIBSC	TU	65.779	
Tuberculin, purified protein derivative (PPD), avian, Lyophilized, 500,000 IU / ampoule.	1st International Standard, 1954	Mycobacterium avium culture derived	NIBSC	PPDA	53.227	
Tuberculin, purified protein derivative (PPD), bovine, Lyophilized, 58,500 IU / ampoule.	1st International Standard, 1986	Mycobacterium bovis culture derived	NIBSC	PPD BOV	86.1518	
Tuberculin, purified protein derivative (PPD), mammalian, Lyophilized, 5,000 IU / ampoule.	1st International Standard, 1951	Mycobacterium tuberculosis culture derived	NIBSC	PPDT	51.127	
Tumor necrosis factor (TNF) alpha, recombinant, Lyophilized, 43,000 IU/ampoule	3rd International Standard, 2013	Recombinant cytokine	NIBSC	12/154	2013.2219	

PREPARATION	STANDARD	MATERIAL	HELD AT	CODE	WHO/BS DOCUMENT	
Tumor necrosis factor, beta, human, Lyophilized, 150,000 units / ampoule.	1st Reference Reagent, 1996	Recombinant cytokine	NIBSC	87/640	96.1852	
Tumour Necrosis Factor receptor Fc fusion protein (Etanercept), Lyophilized., 10,000 IU per ampoule	1st International Standard for assay of anti TNF, 2015	Recombinant	NIBSC	13/204	2015.2257	
Typhoid vaccine (acetone-inactivated), Lyophilized, No unitage assigned.	1st International Reference Preparation, 1960	Inactivated salmonella typhi	NIBSC	TYVK	60.515	
Typhoid vaccine (heat-phenol-inactivated), Lyophilized, No unitage assigned.	1st International Reference Preparation, 1960	Inactivated salmonella typhi	NIBSC	TYVL	60.515	
Urokinase, high molecular weight, Lyophilized, 3,200 IU/ampoule	2nd International Standard, 2012	Two-chain urine derived protein	NIBSC	11/184	2012.2205	
Vancomycin, Lyophilized, 109,700 IU per vial	2nd International Standard, 2010	Antibiotic	EDQM	ISA 39036	10.2151	
Vascular endothelial growth factor, human, Lyophilized, 13000 units per ampoule.	1st Reference Reagent, 2005	Recombinant growth factor	NIBSC	02/286	05.2028	
Vi polysaccharide of C. freundii, lyophilised, 1.94 ± 0.12 mg/ampoule - AIM: quantification of the Vi PS component of Vi PS-containing vaccines	1st International Standard, 2017	Vi PS	NIBSC	12/244	2017.2310	
Vi polysaccharide of S. typhi, lyophilised, 2.03 ± 0.10 mg/ampoule	1st International Standard, 2017	Vi PS	NIBSC	16/126	2017.2310	
Vi polysaccharide of S. typhi, lyophilised, 2.03 ± 0.10 mg/ampoule	1st International Standard, 2017	Vi PS	NIBSC	16/126	2017.2315	
Vitamin B12 and folate in human serum, Lyophilized, 12.08 nmol/L of folate and 480 pg/mL of vitamin B12 per ampoule, and 107 pmol/L Holotranscobalamin	1st International Standard, 2005 / 15	Human serum	NIBSC	03/178	05.2025 and 15.2263	
von Willebrand factor, concentrate, Lyophilized, VWF:RCo 9.2 IU/ampoule; VWF:Ag 10.7 IU/ampoule; VWF:CB 10.3 IU/ampoule	2nd International Standard, 2010	Purified plasma protein	NIBSC	09/182	10.2147	
Yellow fever vaccine, Lyophilized, 4.5 log 10 IU / ampoule.	1st International Standard, 2003	Attenuated yellow fever virus	NIBSC	99/616	03.1985 Rev.1	
Zika RNA, Lyophilized., 50,000,000 IU/mL	1st International Standard, 2016	Viraemic plasma	PEI	11486/16	2016.2286	