

# CPC COOPERATIVE PATENT CLASSIFICATION

## C CHEMISTRY; METALLURGY

(NOTES omitted)

### CHEMISTRY

#### C07 ORGANIC CHEMISTRY

(NOTES omitted)

**C07K PEPTIDES** (peptides in foodstuffs [A23](#); obtaining protein compositions for foodstuffs, working-up proteins for foodstuffs [A23J](#); preparations for medicinal purposes [A61K](#); peptides containing beta-lactam rings [C07D](#); cyclic dipeptides not having in their molecule any other peptide link than those which form their ring, e.g. piperazine-2,5-diones, [C07D](#); ergot alkaloids of the cyclic peptide type [C07D 519/02](#); macromolecular compounds having statistically distributed amino acid units in their molecules, i.e. when the preparation does not provide for a specific; but for a random sequence of the amino acid units, homopolyamides and block copolyamides derived from amino acids [C08G 69/00](#); macromolecular products derived from proteins [C08H 1/00](#); preparation of glue or gelatine [C09H](#); single cell proteins, enzymes [C12N](#); genetic engineering processes for obtaining peptides [C12N 15/00](#); compositions for measuring or testing processes involving enzymes [C12Q](#); investigation or analysis of biological material [G01N 33/00](#))

#### NOTES

- In this subclass, the following terms or expressions are used with the meanings indicated:
  - "amino acids" are compounds in which at least one amino group and at least one carboxyl group are bound to the same carbon skeleton and the nitrogen atom of the amino group may form part of a ring;
  - "normal peptide link" is one between an alpha-amino group of an amino acid and the carboxyl group - in position 1 - of another alpha-amino acid;
  - "abnormal peptide link" is a link where at least one of the linked amino acids is not an alpha-amino acid or a link formed by at least one carboxyl or amino group being part of the side chain of a alpha-amino acid;
  - "peptides" are compounds containing at least two amino acid units, which are bound through at least one normal peptide link, including oligopeptides, polypeptides and proteins, where:
    - "linear peptides" may comprise rings formed through S-S bridges, or through a hydroxy or a mercapto group of an hydroxy- or mercapto-amino acid and the carboxyl group of another amino acid, (e.g. peptide lactones) but do not comprise rings which are formed only through peptide links;
    - "cyclic peptides" are peptides comprising at least one ring formed only through peptide links; the cyclisation may occur only through normal peptide links or through abnormal peptide links, e.g. through the 4-amino group of 2,4-diaminobutanoic acid. Thus, cyclic compounds in which at least one link in the ring is a non-peptide link are considered as "linear peptides";
    - "depsipeptides" are compounds containing a sequence of at least two alpha-amino acids and at least one alpha-hydroxy carboxylic acid, which are bound through at least one normal peptide link and ester links, derived from the hydroxy carboxylic acids, where:
      - "linear depsipeptides" may comprise rings formed through S-S bridges, or through an hydroxy or a mercapto group of an hydroxy- or mercapto-amino acid and the carboxyl group of another amino- of hydroxy-acid but do not comprise rings formed only through peptide or ester links derived from hydroxy carboxylic acids, e.g. Gly-Ala-Gly-OCH<sub>2</sub>CO<sub>2</sub>H and Gly-OCH<sub>2</sub>CO-Ala-Gly are considered as "linear depsipeptides", but HOCH<sub>2</sub>CO-Gly-Ala-Gly does not contain an ester link, and is thus a derivative of Gly-Ala-Gly which is covered by [C07K 5/08](#);
      - "cyclic depsipeptides" are peptides containing at least one ring formed only through peptide or ester links - derived from hydroxy carboxylic acids -, e.g. Gly-Ala-Gly-OCH<sub>2</sub>CO.
- Fragments of peptides or peptides modified by removal or addition of amino acids, by substitution of amino acids by others, or by combination of these modifications, are classified as the parent peptides. However, fragments of peptides having only four or less amino acids are also classified in group [C07K 5/00](#).
- Peptides prepared by chemical processes and having an amino acid sequence derived from naturally occurring peptides are classified with the natural one.
- Peptides prepared by recombinant DNA technology are not classified according to the host, but according to the original peptide expressed, e.g. HIV peptide expressed in E. coli is classified with HIV peptides.
- When classifying in this subclass, classification is also made in group [B01D 15/08](#) insofar as subject matter of general interest relating to chromatography is concerned.

**WARNINGS**

1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

C07K 5/023	covered by	<a href="#">C07K 5/0202</a>
C07K 5/027	covered by	<a href="#">C07K 5/0205</a>
C07K 5/03	covered by	<a href="#">C07K 5/0207</a>
C07K 5/033	covered by	<a href="#">C07K 5/021</a>
C07K 5/037	covered by	<a href="#">C07K 5/0215</a>
C07K 5/062	covered by	<a href="#">C07K 5/06017</a>
C07K 5/065	covered by	<a href="#">C07K 5/06078</a>
C07K 5/068	covered by	<a href="#">C07K 5/06086</a>
C07K 5/072	covered by	<a href="#">C07K 5/06104</a>
C07K 5/075	covered by	<a href="#">C07K 5/0613</a>
C07K 5/078	covered by	<a href="#">C07K 5/06139</a>
C07K 5/083	covered by	<a href="#">C07K 5/0804</a>
C07K 5/087	covered by	<a href="#">C07K 5/0812</a>
C07K 5/09	covered by	<a href="#">C07K 5/0815</a>
C07K 5/093	covered by	<a href="#">C07K 5/0819</a>
C07K 5/097	covered by	<a href="#">C07K 5/0821</a>
C07K 5/103	covered by	<a href="#">C07K 5/1005</a>
C07K 5/107	covered by	<a href="#">C07K 5/1016</a>
C07K 5/11	covered by	<a href="#">C07K 5/1019</a>
C07K 5/113	covered by	<a href="#">C07K 5/1021</a>
C07K 5/117	covered by	<a href="#">C07K 5/1024</a>
C07K 14/185	covered by	<a href="#">C07K 14/1816</a>
C07K 14/725	covered by	<a href="#">C07K 14/705</a>
C07K 14/73	covered by	<a href="#">C07K 14/70514</a>
C07K 14/735	covered by	<a href="#">C07K 14/70535</a>
C07K 14/74	covered by	<a href="#">C07K 14/70539</a>

2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

<b>1/00</b>	<b>General methods for the preparation of peptides {, i.e. processes for the organic chemical preparation of peptides or proteins of any length}</b>	1/082	. . . {containing phosphorus}
		1/084	. . . {containing nitrogen}
1/003	. {by transforming the C-terminal amino acid to amides}	1/086	. . . {containing sulfur}
1/006	. {of peptides containing derivatised side chain amino acids}	1/088	. . . {containing other elements, e.g. B, Si, As}
1/02	. in solution { <a href="#">(C07K 1/003, C07K 1/006 take precedence)</a> }	1/10	. using coupling agents { <a href="#">(C07K 1/006 takes precedence)</a> }
1/023	. . {using racemisation inhibiting agents}	1/107	. by chemical modification of precursor peptides
1/026	. . {by fragment condensation in solution}	1/1072	. . {by covalent attachment of residues or functional groups}
1/04	. on carriers { <a href="#">(C07K 1/003, C07K 1/006 take precedence)</a> }	1/1075	. . . {by covalent attachment of amino acids or peptide residues}
1/042	. . {characterised by the nature of the carrier}	1/1077	. . . {by covalent attachment of residues other than amino acids or peptide residues, e.g. sugars, polyols, fatty acids}
1/045	. . {using devices to improve synthesis, e.g. reactors, special vessels}	1/113	. . without change of the primary structure
1/047	. . {Simultaneous synthesis of different peptide species; Peptide libraries}	1/1133	. . . {by redox-reactions involving cystein/cystin side chains}
1/06	. using protecting groups or activating agents { <a href="#">(C07K 1/003, C07K 1/006 take precedence)</a> }	1/1136	. . . {by reversible modification of the secondary, tertiary or quarternary structure, e.g. using denaturing or stabilising agents}
1/061	. . {using protecting groups}	1/12	. by hydrolysis {, i.e. solvolysis in general}
1/062	. . . {for alpha- or omega-carboxy functions}	1/122	. . {Hydrolysis with acids different from HF}
1/063	. . . {for alpha-amino functions}	1/124	. . {Hydrazinolysis}
1/064	. . . {for omega-amino or -guanidino functions}	1/126	. . {Aminolysis}
1/065	. . . {for hydroxy functions, not being part of carboxy functions}	1/128	. . {sequencing}
1/066	. . . {for omega-amido functions}	1/13	. Labelling of peptides
1/067	. . . {for sulfur-containing functions}	1/14	. Extraction; Separation; Purification
1/068	. . . {for heterocyclic side chains}	1/145	. . {by extraction or solubilisation}
1/08	. . using activating agents { <a href="#">(C07K 1/003, C07K 1/006 take precedence)</a> }	1/16	. . by chromatography
		1/165	. . . {mixed-mode chromatography}
		1/18	. . . Ion-exchange chromatography

- 1/20 . . . Partition-, reverse-phase or hydrophobic interaction chromatography
- 1/22 . . . Affinity chromatography or related techniques based upon selective absorption processes
- 1/24 . . by electrochemical means
- 1/26 . . . Electrophoresis
- 1/28 . . . . Isoelectric focusing
- 1/285 . . . . . {multi dimensional electrophoresis}
- 1/30 . . by precipitation
- 1/303 . . . {by salting out}
- 1/306 . . . {by crystallization}

**NOTE**

{Large single crystals of proteins from solutions are classified in [C30B 7/00](#) for the method and in [C30B 29/58](#) for the crystal.}

- 1/32 . . . as complexes
- 1/34 . . by filtration, ultrafiltration or reverse osmosis
- 1/36 . . by a combination of two or more processes of different types

**2/00 Peptides of undefined number of amino acids; Derivatives thereof**

**4/00 Peptides having up to 20 amino acids in an undefined or only partially defined sequence; Derivatives thereof**

- 4/02 . from viruses
- 4/04 . from bacteria
- 4/06 . from fungi
- 4/08 . from algae; from lichens
- 4/10 . from plants
- 4/12 . from animals; from humans

**NOTE**

If no indication to the contrary is given, all amino acids are considered to be in the natural L-form

**5/00 Peptides containing up to four amino acids in a fully defined sequence; Derivatives thereof**

- 5/02 . containing at least one abnormal peptide link
- 5/0202 . . {containing the structure -NH-X-X-C(=O)-, X being an optionally substituted carbon atom or a heteroatom, e.g. beta-amino acids}
- 5/0205 . . {containing the structure -NH-(X)3-C(=O)-, e.g. statine or derivatives thereof}
- 5/0207 . . {containing the structure -NH-(X)4-C(=O)-, e.g. 'isosters', replacing two amino acids}
- 5/021 . . {containing the structure -NH-(X)n-C(=O)-, n being 5 or 6; for n > 6, classification in [C07K 5/06](#) - [C07K 5/10](#), according to the moiety having normal peptide bonds}
- 5/0212 . . {containing the structure -N-C-N-C(=O)-, e.g. retro-inverso peptides}
- 5/0215 . . {containing natural amino acids, forming a peptide bond via their side chain functional group, e.g. epsilon-Lys, gamma-Glu}
- 5/0217 . . {containing the structure -C(=O)-C-N-C(=O)-N-C-C(=O)-}
- 5/022 . . {containing the structure -X-C(=O)-(C)n-N-C-C(=O)-Y-; X and Y being heteroatoms; n being 1 or 2}
- 5/0222 . . . {with the first amino acid being heterocyclic, e.g. Pro, Trp}

- 5/0225 . . {containing the structure -N-C-C(=O)-N-C(=O)-C-N-}
- 5/0227 . . {containing the (partial) peptide sequence -Phe-His-NH-(X)2-C(=O)-, e.g. Renin-inhibitors with n = 2 - 6; for n > 6 see [C07K 5/06](#) - [C07K 5/10](#)}
- 5/04 . containing only normal peptide links

**NOTE**

In groups [C07K 5/06](#) - [C07K 5/10](#) the following terms or expressions are used with the meaning indicated:

neutral: amino acids having in the sidechain the same number of amino groups and carboxylic acid groups or derivatives thereof, e.g. Gly;  
 basic: amino acids having in the sidechain more amino groups than carboxylic acid groups or derivatives thereof, e.g. Arg;  
 acidic: amino acids having in the sidechain more carboxylic acid groups or derivatives thereof than amino groups, e.g. Asp;  
 aliphatic: amino acids having only acyclic carbon atoms in the sidechain, e.g. Ala  
 aromatic;  
 cycloaliphatic: amino acids having a carbocyclic ring in the sidechain, e.g. Phe  
 heterocyclic: amino acids wherein the sidechain contains or is part of a heteroring, e.g. Pro;  
 side chain: the R radical in the optionally functionalised amino acid R-CH(NH<sub>2</sub>)CO<sub>2</sub>H)

- 5/06 . . Dipeptides
- 5/06008 . . . {with the first amino acid being neutral}
- 5/06017 . . . . {and aliphatic}
- 5/06026 . . . . . {the side chain containing 0 or 1 carbon atom, i.e. Gly or Ala}
- 5/06034 . . . . . {the side chain containing 2 to 4 carbon atoms}
- 5/06043 . . . . . {Leu-amino acid}
- 5/06052 . . . . . {Val-amino acid}
- 5/0606 . . . . . {the side chain containing heteroatoms not provided for by [C07K 5/06086](#) - [C07K 5/06139](#), e.g. Ser, Met, Cys, Thr}
- 5/06069 . . . . . {Ser-amino acid}
- 5/06078 . . . . . {and aromatic or cycloaliphatic}
- 5/06086 . . . {with the first amino acid being basic}
- 5/06095 . . . . {Arg-amino acid}
- 5/06104 . . . {with the first amino acid being acidic}
- 5/06113 . . . . {Asp- or Asn-amino acid}
- 5/06121 . . . . . {the second amino acid being aromatic or cycloaliphatic}
- 5/0613 . . . . . {Aspartame}
- 5/06139 . . . {with the first amino acid being heterocyclic}

- 5/06147 . . . . {and His-amino acid; Derivatives thereof}
- 5/06156 . . . . {and Trp-amino acid; Derivatives thereof}
- 5/06165 . . . . {and Pro-amino acid; Derivatives thereof}
- 5/06173 . . . . {and Glp-amino acid; Derivatives thereof}
- 5/06182 . . . . {and Pristinamycin II; Derivatives thereof}
- 5/06191 . . . {containing heteroatoms different from O, S, or N}
- 5/08 . . Tripeptides
- 5/0802 . . . {with the first amino acid being neutral}
- 5/0804 . . . . {and aliphatic}
- 5/0806 . . . . . {the side chain containing 0 or 1 carbon atoms, i.e. Gly, Ala}
- 5/0808 . . . . . {the side chain containing 2 to 4 carbon atoms, e.g. Val, Ile, Leu}
- 5/081 . . . . . {the side chain containing O or S as heteroatoms, e.g. Cys, Ser}
- 5/0812 . . . . {and aromatic or cycloaliphatic}
- 5/0815 . . . {with the first amino acid being basic}
- 5/0817 . . . . {the first amino acid being Arg}
- 5/0819 . . . {with the first amino acid being acidic}
- 5/0821 . . . {with the first amino acid being heterocyclic, e.g. His, Pro, Trp}
- 5/0823 . . . . {and Pro-amino acid; Derivatives thereof}
- 5/0825 . . . . {and Glp-amino acid; Derivatives thereof}
- 5/0827 . . . {containing heteroatoms different from O, S, or N}
- 5/10 . . Tetrapeptides
- 5/1002 . . . {with the first amino acid being neutral}
- 5/1005 . . . . {and aliphatic}
- 5/1008 . . . . . {the side chain containing 0 or 1 carbon atoms, i.e. Gly, Ala}
- 5/101 . . . . . {the side chain containing 2 to 4 carbon atoms, e.g. Val, Ile, Leu}
- 5/1013 . . . . . {the side chain containing O or S as heteroatoms, e.g. Cys, Ser}
- 5/1016 . . . . {and aromatic or cycloaliphatic}
- 5/1019 . . . {with the first amino acid being basic}
- 5/1021 . . . {with the first amino acid being acidic}
- 5/1024 . . . {with the first amino acid being heterocyclic}
- 5/1027 . . . {containing heteroatoms different from O, S, or N}
- 5/12 . . Cyclic peptides {with only normal peptide bonds in the ring}

**NOTE**

Cyclic peptides containing at least one abnormal peptide link are classified as linear peptides

- 5/123 . . . {Tripeptides}
- 5/126 . . . {Tetrapeptides}

**7/00 Peptides having 5 to 20 amino acids in a fully defined sequence; Derivatives thereof**

**NOTE**

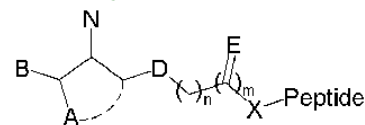
In this subgroup cyclic compounds related to specific compounds which are classified in a specific group, e.g. [C07K 7/062](#), are classified in this specific group only

- 7/02 . Linear peptides containing at least one abnormal peptide link
- 7/04 . Linear peptides containing only normal peptide links

- 7/06 . . having 5 to 11 amino acids
- 7/062 . . . {Serum thymic factor}
- 7/065 . . . {Thymic humoral factor}
- 7/067 . . . {Hemoregulatory peptides based on sequence Glp-Glu-Asp-Cys-Lys}
- 7/08 . . having 12 to 20 amino acids ([gastrins C07K 14/595](#); [somatostatins C07K 14/655](#); [melanotropins C07K 14/68](#))
- 7/083 . . . {Neurotensin}
- 7/086 . . . {Bombesin; Related peptides (having more than 20 amino acids [C07K 14/57572](#))}
- 7/14 . . Angiotensins; Related peptides
- 7/16 . . Oxytocins; Vasopressins; Related peptides
- 7/18 . . Kallidins; Bradykinins; Related peptides
- 7/22 . . {Tachykinins, e.g.} Eledoisins {, Substance P}; Related peptides
- 7/23 . . Luteinising hormone-releasing hormone [LHRH]; Related peptides
- 7/28 . . Gramicidins A, B, D; Related peptides
- 7/50 . Cyclic peptides containing at least one abnormal peptide link
- 7/52 . . with only normal peptide links in the ring
- 7/54 . . with at least one abnormal peptide link in the ring
- 7/56 . . . the cyclisation not occurring through 2,4-diamino-butanoic acid
- 7/58 . . . . Bacitracins; Related peptides
- 7/60 . . . the cyclisation occurring through the 4-amino group of 2,4-diamino-butanoic acid
- 7/62 . . . . Polymyxins; Related peptides
- 7/64 . Cyclic peptides containing only normal peptide links
- 7/645 . . {Cyclosporins; Related peptides}
- 7/66 . . Gramicidins S, C; Tyrocidins A, B, C; Related peptides

**9/00 Peptides having up to 20 amino acids, containing saccharide radicals and having a fully defined sequence; Derivatives thereof**

- 9/001 . {the peptide sequence having less than 12 amino acids and not being part of a ring structure}
- 9/003 . . {Peptides being substituted by heterocyclic radicals, e.g. bleomycin, phleomycin}
- 9/005 . . {containing within the molecule the substructure with m, n >



0 and m+n > 0, A, B, D, E being heteroatoms; X being a bond or a chain, e.g. muramylpeptides}

- 9/006 . {the peptide sequence being part of a ring structure}
- 9/008 . . {directly attached to a hetero atom of the saccharide radical, e.g. actaplanin, avoparcin, ristomycin, vancomycin}

**11/00 Depsipeptides having up to 20 amino acids in a fully defined sequence; Derivatives thereof**

- 11/02 . cyclic, e.g. valinomycins {; Derivatives thereof}

**14/00 Peptides having more than 20 amino acids; Gastrins; Somatostatins; Melanotropins; Derivatives thereof**

- 14/001 . {by chemical synthesis}
- 14/003 . . {Peptide-nucleic acids (PNAs)}

14/005 . from viruses

#### **NOTE**

When classifying in this group, subject-matter related to viral proteins shall be classified by the symbol [C07K 14/005](#) together with (a number of) appropriate indexing codes out of [C12N 2710/00-C12N 2795/00](#)

#### **WARNING**

1. From March 15, 2012 groups [C07K 14/01](#) - [C07K 14/19](#) and subgroups thereof are no longer used for the classification of new documents. 2. Reclassification of the back-file follows the principle outlined in the Note here above

14/01 . . DNA viruses  
 14/015 . . . Parvoviridae, e.g. feline panleukopenia virus, human parvovirus  
 14/02 . . . Hepadnaviridae, e.g. hepatitis B virus  
 14/025 . . . Papovaviridae, e.g. papillomavirus, polyomavirus, SV40, BK virus, JC virus  
 14/03 . . . Herpetoviridae, e.g. pseudorabies virus  
 14/032 . . . . {Pseudorabies virus, i.e. Anjertzky virus}  
 14/035 . . . . Herpes simplex virus I or II  
 14/04 . . . . Varicella-zoster virus  
 14/045 . . . . Cytomegalovirus  
 14/05 . . . . Epstein-Barr virus  
 14/055 . . . . Marek's disease virus  
 14/06 . . . . Infectious bovine rhinotracheitis virus  
 14/065 . . . . Poxviridae, e.g. avipoxvirus  
 14/07 . . . . Vaccinia virus; Variola virus  
 14/075 . . . Adenoviridae  
 14/08 . . RNA viruses  
 14/082 . . . {Arteriviridae, e.g. EAV, PRRSV}  
 14/085 . . . Picornaviridae, e.g. coxsackie virus, echovirus, enterovirus  
 14/09 . . . . Foot-and-mouth disease virus  
 14/095 . . . . Rhinovirus  
 14/10 . . . . Hepatitis A virus  
 14/105 . . . . Poliovirus  
 14/11 . . . Orthomyxoviridae, e.g. influenza virus  
 14/115 . . . Paramyxoviridae, e.g. parainfluenza virus  
 14/12 . . . . Mumps virus; Measles virus  
 14/125 . . . . Newcastle disease virus  
 14/13 . . . . Canine distemper virus  
 14/135 . . . . Respiratory syncytial virus  
 14/14 . . . Reoviridae, e.g. rotavirus, bluetongue virus, Colorado tick fever virus  
 14/145 . . . Rhabdoviridae, e.g. rabies virus, Duvenhage virus, Mokola virus or vesicular stomatitis virus  
 14/15 . . . Retroviridae, e.g. bovine leukaemia virus, feline leukaemia virus human T-cell leukaemia-lymphoma virus  
 14/155 . . . . Lentiviridae, e.g. human immunodeficiency virus [HIV], visna-maedi virus or equine infectious anaemia virus  
 14/16 . . . . . HIV-1 {; HIV-2}  
 14/161 . . . . . {gag-pol, e.g. p55, p24/25, p17/18, p7, p6, p66/68, p51/52, p31/34, p32, p40}  
 14/162 . . . . . {env, e.g. gp160, gp110/120, gp41, V3, peptid T, CD4-Binding site}

14/163 . . . . . {Regulatory proteins, e.g. tat, nef, rev, vif, vpu, vpr, vpt, vpx}  
 14/165 . . . Coronaviridae, e.g. avian infectious bronchitis virus  
 14/17 . . . . Porcine transmissible gastroenteritis virus  
 14/175 . . . Bunyaviridae, e.g. California encephalitis virus, Rift valley fever virus, Hantaan virus  
 14/18 . . . Togaviridae; {Flaviviridae}  
 14/1808 . . . . {Alphaviruses or Group A arboviruses, e.g. sindbis, VEE, EEE, WEE, semliki forest virus (rubella virus [C07K 14/19](#))}  
 14/1816 . . . . {Flaviviridae, e.g. pestivirus, mucosal disease virus, bovine viral diarrhoea virus, classical swine fever virus (hog cholera virus), border disease virus}  
 14/1825 . . . . . {Flaviviruses or Group B arboviruses, e.g. yellow fever virus, japanese encephalitis, tick-borne encephalitis, dengue}  
 14/1833 . . . . . {Hepatitis C; Hepatitis NANB}  
 14/1841 . . . . . {Hepatitis G; Hepatitis NANBNCNDNE}  
 14/19 . . . . Rubella virus  
 14/195 . from bacteria

#### **NOTE**

In groups [C07K 14/20](#) - [C07K 14/365](#), where appropriate, after the bacteria terminology, the indication of the order (O), family (F) or genus (G) of the bacteria is given in brackets.

14/20 . . from Spirochaetales (O), e.g. Treponema, Leptospira  
 14/205 . . from Campylobacter (G)  
 14/21 . . from Pseudomonadaceae (F)  
 14/212 . . . {Moraxellaceae, e.g. Acinetobacter, Moraxella, Oligella, Psychrobacter}  
 14/215 . . from Halobacteriaceae (F)  
 14/22 . . from Neisseriaceae (F)  
 14/225 . . from Alcaligenes (G)  
 14/23 . . from Brucella (G)  
 14/235 . . from Bordetella (G)  
 14/24 . . from Enterobacteriaceae (F), e.g. Citrobacter, Serratia, Proteus, Providencia, Morganella, Yersinia  
 14/245 . . . Escherichia (G)  
 14/25 . . . Shigella (G)  
 14/255 . . . Salmonella (G)  
 14/26 . . . Klebsiella (G)  
 14/265 . . . Enterobacter (G)  
 14/27 . . . Erwinia (G)  
 14/275 . . . Hafnia (G)  
 14/28 . . from Vibrionaceae (F)  
 14/285 . . from Pasteurellaceae (F), e.g. Haemophilus influenza  
 14/29 . . from Richettsiales (O)  
 14/295 . . from Chlamydiales (O)  
 14/30 . . from Mycoplasmatales, e.g. Pleuropneumonia-like organisms [PPLO]  
 14/305 . . from Micrococcaceae (F)  
 14/31 . . . from Staphylococcus (G)  
 14/315 . . from Streptococcus (G), e.g. Enterococci  
 14/3153 . . . {Streptokinase}  
 14/3156 . . . {from Streptococcus pneumoniae (Pneumococcus) (Streptokinase [C07K 14/3153](#))}



- 14/32 . . from Bacillus (G)
- 14/325 . . . Bacillus thuringiensis crystal peptides, i.e. delta-endotoxins
- 14/33 . . from Clostridium (G)
- 14/335 . . from Lactobacillus (G)
- 14/34 . . from Corynebacterium (G)
- 14/345 . . from Brevibacterium (G)
- 14/35 . . from Mycobacteriaceae (F)
- 14/355 . . from Nocardia (G)
- 14/36 . . from Actinomyces; from Streptomyces (G)
- 14/365 . . from Actinoplanes (G)
- 14/37 . from fungi
- 14/375 . . from Basidiomycetes
- 14/38 . . from Aspergillus
- 14/385 . . from Penicillium
- 14/39 . . from yeasts
- 14/395 . . . from Saccharomyces
- 14/40 . . . from Candida
- 14/405 . from algae
- 14/41 . from lichens
- 14/415 . from plants
- 14/42 . . Lectins, e.g. concanavalin, phytohaemagglutinin
- 14/425 . . Zeins
- 14/43 . . {Sweetening agents, e.g.} thaumatin, {monellin}
- 14/435 . from animals; from humans

**WARNING**

Group [C07K 14/435](#) is impacted by reclassification into groups [C07K 14/791](#) - [C07K 14/7929](#).

Groups [C07K 14/435](#) and [C07K 14/791](#) - [C07K 14/7929](#) should be considered in order to perform a complete search.

- 14/43504 . . {from invertebrates}
- 14/43509 . . . {from crustaceans}
- 14/43513 . . . {from arachnidae}
- 14/43518 . . . . {from spiders}
- 14/43522 . . . . {from scorpions}
- 14/43527 . . . . {from ticks}
- 14/43531 . . . . {from mites}
- 14/43536 . . . {from worms}
- 14/4354 . . . . {from nematodes}
- 14/43545 . . . . . {from Caenorhabditis}
- 14/4355 . . . . {from cestodes}
- 14/43554 . . . . . {from Taenia}
- 14/43559 . . . . {from trematodes}
- 14/43563 . . . {from insects}
- 14/43568 . . . . {from wasps}
- 14/43572 . . . . {from bees}
- 14/43577 . . . . {from flies}
- 14/43581 . . . . . {from Drosophila}
- 14/43586 . . . . {from silkworms}
- 14/4359 . . . . {from fleas}
- 14/43595 . . . {from coelenteratae, e.g. medusae}
- 14/44 . . from protozoa
- 14/445 . . . Plasmodium
- 14/45 . . . Toxoplasma
- 14/455 . . . Eimeria

- 14/46 . . from vertebrates

**WARNING**

Group [C07K 14/46](#) is impacted by reclassification into groups [C07K 14/791](#) - [C07K 14/7929](#).

Groups [C07K 14/46](#) and [C07K 14/791](#) - [C07K 14/7929](#) should be considered in order to perform a complete search.

- 14/461 . . . {from fish}
- 14/463 . . . {from amphibians}
- 14/465 . . . from birds
- 14/47 . . . from mammals

**WARNING**

Group [C07K 14/47](#) is impacted by reclassification into groups [C07K 14/791](#) - [C07K 14/7929](#).

Groups [C07K 14/47](#) and [C07K 14/791](#) - [C07K 14/7929](#) should be considered in order to perform a complete search.

- 14/4701 . . . . {not used}
- 14/4702 . . . . . {Regulators; Modulating activity}
- 14/4703 . . . . . {Inhibitors; Suppressors}
- 14/4705 . . . . . {stimulating, promoting or activating activity}
- 14/4706 . . . . . . {Guanosine triphosphatase activating protein, GAP}
- 14/4707 . . . . . {Muscular dystrophy}
- 14/4708 . . . . . {Duchenne dystrophy}
- 14/471 . . . . . {Myotonic dystrophy}
- 14/4711 . . . . . {Alzheimer's disease; Amyloid plaque core protein}
- 14/4712 . . . . . {Cystic fibrosis}
- 14/4713 . . . . . {Autoimmune diseases, e.g. Insulin-dependent diabetes mellitus, multiple sclerosis, rheumatoid arthritis, systemic lupus erythematosus; Autoantigens}
- 14/4715 . . . . . {Pregnancy proteins, e.g. placenta proteins, alpha-feto-protein, pregnancy specific beta glycoprotein}
- 14/4716 . . . . . {Muscle proteins, e.g. myosin, actin}
- 14/4717 . . . . . {Plasma globulins, lactoglobulin}
- 14/4718 . . . . . {Cytokine-induced proteins}
- 14/472 . . . . . {Complement proteins, e.g. anaphylatoxin, C3a, C5a}
- 14/4721 . . . . . {Lipocortins}
- 14/4722 . . . . . {G-proteins}
- 14/4723 . . . . . {Cationic antimicrobial peptides, e.g. defensins}
- 14/4725 . . . . . {Proteoglycans, e.g. aggrecan}
- 14/4726 . . . . . {Lectins}
- 14/4727 . . . . . {Mucins, e.g. human intestinal mucin}
- 14/4728 . . . . . {Calcium binding proteins, e.g. calmodulin}
- 14/473 . . . . . {alpha-Glycoproteins}
- 14/4731 . . . . . {Recognins, e.g. malignin}
- 14/4732 . . . . . {Casein (in foodstuffs [A23J](#))}
- 14/4733 . . . . . {Acute pancreatitis-associated protein}
- 14/4735 . . . . . {Villin}

14/4736	. . . . .	{Retinoblastoma protein}	14/5434	. . . . .	{IL-12}
14/4737	. . . . .	{C-reactive protein}	14/5437	. . . . .	{IL-13}
14/4738	. . . . .	{Cell cycle regulated proteins, e.g. cyclin, CDC, INK-CCR (cell cycle dependent kinases <a href="#">C12N 9/12</a> )}	14/544	. . . . .	{IL-14}
14/474	. . . . .	{Pancreatic thread protein; Reg protein}	14/5443	. . . . .	{IL-15}
14/4741	. . . . .	{Keratin; Cytokeratin}	14/5446	. . . . .	{IL-16}
14/4742	. . . . .	{Bactericidal/Permeability-increasing protein [BPI]}	14/545	. . . . .	IL-1
14/4743	. . . . .	{Insulin-like growth factor binding protein}	14/55	. . . . .	IL-2
14/4745	. . . . .	{Cancer-associated SCM-recognition factor, CRISPP}	14/555	. . .	Interferons [IFN]
14/4746	. . . . .	{p53}	14/56	. . . . .	IFN-alpha
14/4747	. . . . .	{Apoptosis related proteins}	14/565	. . . . .	IFN-beta
14/4748	. . . . .	{Tumour specific antigens; Tumour rejection antigen precursors [TRAP], e.g. MAGE}	14/57	. . . . .	IFN-gamma
14/475	. .	Growth factors; Growth regulators	14/575	. .	Hormones (derived from pro-opiomelanocortin, pro-enkephalin or pro-dynorphin <a href="#">C07K 14/665</a> , e.g. corticotropin <a href="#">C07K 14/695</a> )
14/4753	. . .	{Hepatocyte growth factor; Scatter factor; Tumor cytotoxic factor II}	14/57509	. . .	{Corticotropin releasing factor [CRF] (Urotensin)}
14/4756	. . .	{Neuregulins, i.e. p185erbB2 ligands, glial growth factor, heregulin, ARIA, neu differentiation factor}	14/57518	. . .	{Placental lactogen; Chorionic somatomammotropin}
14/48	. . .	Nerve growth factor [NGF]	14/57527	. . .	{Calcitonin gene related peptide}
14/485	. . .	Epidermal growth factor [EGF], i.e. urogastrone	14/57536	. . .	{Endothelin, vasoactive intestinal contractor [VIC]}
14/49	. . .	Platelet-derived growth factor [PDGF]	14/57545	. . .	{Neuropeptide Y}
14/495	. . .	Transforming growth factor [TGF]	14/57554	. . .	{Prolactin}
14/50	. . .	Fibroblast growth factor [FGF]	14/57563	. . .	{Vasoactive intestinal peptide [VIP]; Related peptides}
14/501	. . . . .	{acidic FGF [aFGF]}	14/57572	. . .	{Gastrin releasing peptide ( <a href="#">bombesin C07K 7/086</a> )}
14/503	. . . . .	{basic FGF [bFGF]}	14/57581	. . .	{Thymosin; Related peptides}
14/505	. . .	Erythropoietin [EPO]	14/5759	. . .	{Products of obesity genes, e.g. leptin, obese (OB), tub, fat}
14/51	. . .	Bone morphogenetic factor; Osteogenins; Osteogenic factor; Bone-inducing factor	14/58	. . .	Atrial natriuretic factor complex; Atriopeptin; Atrial natriuretic peptide [ANP]; Cardionatrin; Cardiodilatin
14/515	. . .	Angiogenesis factors; Angiogenin	14/582	. . . . .	{at least 1 amino acid in D-form}
14/52	. .	Cytokines; Lymphokines; Interferons	14/585	. . .	Calcitonins
14/521	. . .	{Chemokines}	14/5855	. . . . .	{at least 1 amino acid in D-form}
14/522	. . . . .	{Alpha-chemokines, e.g. NAP-2, ENA-78, GRO-alpha/MGSA/NAP-3, GRO-beta/MIP-2alpha, GRO-gamma/MIP-2beta, IP-10, GCP-2, MIG, PBSF, PF-4, KC}	14/59	. . .	Follicle-stimulating hormone [FSH]; Chorionic gonadotropins, e.g.hCG [human chorionic gonadotropin]; Luteinising hormone [LH]; Thyroid-stimulating hormone [TSH]
14/523	. . . . .	{Beta-chemokines, e.g. RANTES, I-309/TCA-3, MIP-1alpha, MIP-1beta/ACT-2/LD78/SCIF, MCP-1/MCAF, MCP-2, MCP-3, LDCF-1, LDCF-2}	14/592	. . . . .	{at least 1 amino acid in D-form}
14/524	. . .	{Thrombopoietin, i.e. C-MPL ligand}	14/595	. . .	Gastrins; Cholecystokinins [CCK]
14/525	. . .	Tumour necrosis factor [TNF]	14/5955	. . . . .	{at least 1 amino acid in D-form}
14/5255	. . . . .	{Lymphotoxin [LT]}	14/60	. . .	Growth hormone-releasing factor [GH-RF], i.e. somatoliberin
14/53	. . .	Colony-stimulating factor [CSF]	14/605	. . .	Glucagons
14/535	. . . . .	Granulocyte CSF; Granulocyte-macrophage CSF	14/61	. . .	Growth hormone [GH], i.e. somatotropin
14/54	. . .	Interleukins [IL]	14/615	. . . . .	Extraction from natural sources
14/5403	. . . . .	{IL-3}	14/62	. . .	Insulins
14/5406	. . . . .	{IL-4}	14/622	. . . . .	{at least 1 amino acid in D-form}
14/5409	. . . . .	{IL-5}	14/625	. . . . .	Extraction from natural sources
14/5412	. . . . .	{IL-6}	14/63	. . .	Motilins
14/5415	. . . . .	{Leukaemia inhibitory factor [LIF]}	14/635	. . .	Parathyroid hormone, i.e. parathormone; Parathyroid hormone-related peptides
14/5418	. . . . .	{IL-7}	14/64	. . .	Relaxins
14/5421	. . . . .	{IL-8}	14/645	. . .	Secretins
14/5425	. . . . .	{IL-9}	14/65	. . .	Insulin-like growth factors, i.e. somatomedins, e.g. IGF-1, IGF-2
14/5428	. . . . .	{IL-10}	14/655	. . .	Somatostatins
14/5431	. . . . .	{IL-11}	14/6555	. . . . .	{at least 1 amino acid in D-form}
			14/66	. . .	Thymopoietins
			14/662	. . . . .	{at least 1 amino acid in D-form}

- 14/665 . . . derived from pro-opiomelanocortin, pro-enkephalin or pro-dynorphin
- 14/67 . . . Lipotropins, e.g. beta, gamma lipotropin
- 14/672 . . . . {with at least 1 amino acid in D-form}
- 14/675 . . . Beta-endorphins
- 14/6755 . . . . {with at least 1 amino acid in D-form}
- 14/68 . . . Melanocyte-stimulating hormone [MSH]
- 14/685 . . . . Alpha-melanotropin
- 14/69 . . . . Beta-melanotropin
- 14/695 . . . Corticotropin [ACTH]
- 14/6955 . . . . {with at least 1 amino acid in D-form}
- 14/70 . . . Enkephalins
- 14/702 . . . . {with at least 1 amino acid in D-form}
- 14/705 . . Receptors; Cell surface antigens; Cell surface determinants {(tumour specific antigens [C07K 14/4748](#))}

**WARNING**

Group [C07K 14/705](#) is impacted by reclassification into groups [C07K 14/791](#) - [C07K 14/7929](#).  
Groups [C07K 14/705](#) and [C07K 14/791](#) - [C07K 14/7929](#) should be considered in order to perform a complete search.

- 14/70503 . . . . {Immunoglobulin superfamily}
- 14/70507 . . . . {CD2}
- 14/7051 . . . . {T-cell receptor (TcR)-CD3 complex}
- 14/70514 . . . . {CD4}
- 14/70517 . . . . {CD8}
- 14/70521 . . . . {CD28, CD152}
- 14/70525 . . . . {ICAM molecules, e.g. CD50, CD54, CD102}
- 14/70528 . . . . {CD58}
- 14/70532 . . . . {B7 molecules, e.g. CD80, CD86}
- 14/70535 . . . . {Fc-receptors, e.g. CD16, CD32, CD64 (CD2314/705F)}
- 14/70539 . . . . {MHC-molecules, e.g. HLA-molecules}
- 14/70542 . . . . {CD106}
- 14/70546 . . . {Integrin superfamily}
- 14/7055 . . . . {Integrin beta1-subunit-containing molecules, e.g. CD29, CD49}
- 14/70553 . . . . {Integrin beta2-subunit-containing molecules, e.g. CD11, CD18}
- 14/70557 . . . . {Integrin beta3-subunit-containing molecules, e.g. CD41, CD51, CD61}
- 14/7056 . . . {Lectin superfamily, e.g. CD23, CD72}
- 14/70564 . . . . {Selectins, e.g. CD62}
- 14/70567 . . . {Nuclear receptors, e.g. retinoic acid receptor [RAR], RXR, nuclear orphan receptors}
- 14/70571 . . . {for neuromediators, e.g. serotonin receptor, dopamine receptor}
- 14/70575 . . . {NGF/TNF-superfamily, e.g. CD70, CD95L, CD153, CD154 (NGF [C07K 14/48](#), TNF [C07K 14/525](#))}
- 14/70578 . . . {NGF-receptor/TNF-receptor superfamily, e.g. CD27, CD30, CD40, CD95 (NGF-receptor [C07K 14/71](#), TNF-receptor [C07K 14/7151](#))}
- 14/70582 . . . . {CD71}
- 14/70585 . . . . {CD44}
- 14/70589 . . . . {CD45}
- 14/70592 . . . . {CD52}

- 14/70596 . . . . {Molecules with a "CD"-designation not provided for elsewhere}
- 14/71 . . . for growth factors; for growth regulators
- 14/715 . . . for cytokines; for lymphokines; for interferons
- 14/7151 . . . . {for tumor necrosis factor [TNF], for lymphotoxin [LT]}
- 14/7153 . . . . {for colony-stimulating factors [CSF]}
- 14/7155 . . . . {for interleukins [IL]}
- 14/7156 . . . . {for interferons [IFN]}
- 14/7158 . . . . {for chemokines}
- 14/72 . . . for hormones {(for neuromediators [C07K 14/70571](#))}
- 14/721 . . . . {Steroid/thyroid hormone superfamily, e.g. GR, EcR, androgen receptor, oestrogen receptor}
- 14/723 . . . . {G protein coupled receptor, e.g. TSHR-thyrotropin-receptor, LH/hCG receptor, FSH receptor}
- 14/745 . . Blood coagulation or fibrinolysis factors
- 14/7455 . . . {Thrombomodulin}
- 14/75 . . . Fibrinogen
- 14/755 . . . Factors VIII {, e.g. factor VIII C (AHF), factor VIII Ag (VWF)}
- 14/76 . . . Albumins
- 14/765 . . . Serum albumin, e.g. HSA
- 14/77 . . . Ovalbumin
- 14/775 . . . Apolipoproteins
- 14/78 . . . Connective tissue peptides, e.g. collagen, elastin, laminin, fibronectin, vitronectin or cold insoluble globulin [CIG]
- 14/785 . . . Alveolar surfactant peptides; Pulmonary surfactant peptides
- 14/79 . . . Transferrins, e.g. lactoferrins, ovotransferrins
- 14/791 . . . {Ion channels}

**WARNING**

Groups [C07K 14/791](#) - [C07K 14/79186](#) are incomplete pending reclassification of documents from groups [C07K 14/435](#), [C07K 14/46](#), [C07K 14/47](#) and [C07K 14/705](#).  
All groups listed in this Warning should be considered in order to perform a complete search.

- 14/7912 . . . . {Voltage gated ion channels}
- 14/79122 . . . . {Potassium channels}
- 14/79124 . . . . {Sodium channels}
- 14/79126 . . . . {Calcium channels}
- 14/7914 . . . . {Light-gated ion channels}
- 14/79144 . . . . {Rhodopsin}
- 14/79148 . . . . . {Anion-conducting channel rhodopsin}
- 14/7916 . . . . {Ligand-gated ion channels}
- 14/79162 . . . . {Serotonin}
- 14/79164 . . . . {Nicotinic acetylcholine}
- 14/79166 . . . . {Gamma aminobutyric acid [GABA]}
- 14/79168 . . . . {Glycine [GlyR]}
- 14/79169 . . . . {Glutamate}
- 14/7918 . . . . {Mechanosensitive ion channels}
- 14/79182 . . . . {Transient receptor potential cation channels [TRP]}
- 14/79186 . . . . {Epithelial sodium channel [ENaC] or degenerin sodium channel [DEG]}



- 14/792 . . {Transporters}
- WARNING**
- Groups [C07K 14/792](#) - [C07K 14/7929](#) are incomplete pending reclassification of documents from groups [C07K 14/435](#), [C07K 14/46](#), [C07K 14/47](#) and [C07K 14/705](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 14/7921 . . . {ATP binding cassette [ABC] transporters}
- 14/7922 . . . {Na+K+-ATPase}
- 14/7924 . . . {Folate}
- 14/7926 . . . {Glucose}
- 14/7928 . . . {Dopamine}
- 14/7929 . . . {Serotonin}
- 14/795 . Porphyrin- or corrin-ring-containing peptides
- 14/80 . . Cytochromes
- 14/805 . . Haemoglobins; Myoglobins
- 14/81 . Protease inhibitors
- 14/8103 . . {Exopeptidase (E.C. 3.4.11-19) inhibitors}
- 14/8107 . . {Endopeptidase (E.C. 3.4.21-99) inhibitors}
- 14/811 . . . {Serine protease (E.C. 3.4.21) inhibitors}
- 14/8114 . . . . {Kunitz type inhibitors}
- 14/8117 . . . . . {Bovine/basic pancreatic trypsin inhibitor (BPTI, aprotinin)}
- 14/8121 . . . . . {Serpins}
- 14/8125 . . . . . {Alpha-1-antitrypsin}
- 14/8128 . . . . . {Antithrombin III}
- 14/8132 . . . . . {Plasminogen activator inhibitors}
- 14/8135 . . . . . {Kazal type inhibitors, e.g. pancreatic secretory inhibitor, ovomucoid}
- 14/8139 . . . {Cysteine protease (E.C. 3.4.22) inhibitors, e.g. cystatin}
- 14/8142 . . . {Aspartate protease (E.C. 3.4.23) inhibitors, e.g. HIV protease inhibitors}
- 14/8146 . . . {Metalloprotease (E.C. 3.4.24) inhibitors, e.g. tissue inhibitor of metallo proteinase, TIMP}
- 14/815 . . from leeches, e.g. hirudin, eglin
- 14/82 . Translation products from oncogenes
- 14/825 . Metallothioneins
- 16/00 Immunoglobulins [IG], e.g. monoclonal or polyclonal antibodies**
- NOTES**
1. In this main group, where appropriate, after the virus or bacteria terminology, the indication of the order (O), family (F) or genus (G) is given in parentheses.
  2. {Documents characterised by the technical aspects of the construction of an antibody or fragment thereof, should be classified in groups [C07K 16/00](#) - [C07K 16/065](#) or groups [C07K 16/46](#) - [C07K 16/468](#).}
  3. {Documents not characterised by the technical aspects of the construction of an antibody or fragment thereof, should be classified only according to their specificity, where necessary accompanied by one or more appropriate indexing codes.}
- 16/005 . {constructed by phage libraries}
- 16/02 . from eggs
- 16/04 . from milk
- 16/06 . from serum
- 16/065 . . {Purification, fragmentation}
- 16/08 . against material from viruses
- 16/081 . . DNA viruses
- 16/082 . . . Hepadnaviridae (F), e.g. hepatitis B virus
- 16/084 . . . Papillomaviridae (F); Polyomaviridae (F), e.g. SV40, BK virus or JC virus
- 16/085 . . . Orthoherpesviridae (F), e.g. pseudorabies virus or Epstein-Barr virus
- 16/087 . . . . Herpes simplex virus
- 16/088 . . . . {Varicella-zoster virus}
- 16/089 . . . . {Cytomegalovirus}
- 16/10 . . RNA viruses
- 16/102 . . . Coronaviridae (F)
- 16/104 . . . . Severe acute respiratory syndrome coronavirus 2 [SARS-CoV-2]
- 16/106 . . . Picornaviridae (F), e.g. hepatitis A virus
- 16/108 . . . Orthomyxoviridae (F), e.g. influenza virus
- 16/11 . . . Paramyxoviridae (F); Pneumoviridae (F), e.g. respiratory syncytial virus [RSV]
- 16/112 . . . Retroviridae (F), e.g. leukemia viruses
- 16/114 . . . . Lentivirus (G), e.g. human immunodeficiency virus [HIV], feline immunodeficiency virus [FIV] or simian immunodeficiency virus [SIV]
- 16/1143 . . . . . {Gag-pol proteins, e.g. p17 or p24}
- 16/1145 . . . . . {Env proteins, e.g. gp41, gp110/120, gp160, V3, principal neutralising domain [PND] or CD4-binding site}
- 16/1147 . . . . . {Regulatory proteins, e.g. trans-activator of transcription [TAT], rev or vacuolar protein targeting [VPT]}
- 16/116 . . . Togaviridae (F); Matonaviridae (F); Flaviviridae (F)
- 16/118 . . . . Hepatitis C virus; GB virus C [GBV-C]
- 16/12 . against material from bacteria
- 16/1203 . . Gram-negative bacteria
- 16/1207 . . . {from Spirochaetales (O), e.g. Treponema, Leptospira}
- 16/121 . . . Helicobacter (G); Campylobacter (G)
- 16/1214 . . . Pseudomonadaceae (F)
- 16/1217 . . . Neisseriaceae (F)
- 16/1218 . . . Acinetobacter (G)
- 16/1221 . . . {from Brucella (G)}
- 16/1225 . . . {from Bordetella (G)}
- 16/1228 . . . Enterobacterales (O), e.g. Citrobacter (G), Serratia (G), Proteus (G), Providencia (G), Morganella (G) or Yersinia (G)
- 16/1232 . . . . Escherichia (G)
- 16/1235 . . . . Salmonella (G)
- 16/1239 . . . {from Vibrionaceae (G)}
- 16/1242 . . . {from Pasteurellaceae (F), e.g. Haemophilus influenza}
- 16/1246 . . . Rickettsiales (O)
- 16/125 . . . {from Chlamydiales (O)}
- 16/1253 . . . {from Mycoplasmatales, e.g. Pleuropneumonia-like organisms [PPLO]}
- 16/1257 . . . {from Bacteroidaceae (F)}
- 16/126 . . . Legionella (G)
- 16/1264 . . . {from Rhizobiaceae (F)}
- 16/1267 . . Gram-positive bacteria

- 16/1271 . . . Micrococcaceae (F); Staphylococcaceae (F),  
e.g. Staphylococcus (G)
- 16/1275 . . . Streptococcus (G)
- 16/1278 . . . Bacillus (G)
- 16/1282 . . . Clostridium (G)
- 16/1285 . . . {from Corynebacterium (G)}
- 16/1289 . . . Mycobacteriaceae (F)
- 16/1292 . . . {from Actinomyces; from Streptomyces (G)}
- 16/1296 . . . {from Listeria}
- 16/14 . . against material from fungi, algae or lichens
- 16/16 . . against material from plants
- 16/18 . . against material from animals or humans
- 16/20 . . from protozoa
- 16/205 . . . {Plasmodium}
- 16/22 . . against growth factors {; against growth  
regulators}
- 16/24 . . against cytokines, lymphokines or interferons
- 16/241 . . . {Tumor Necrosis Factors}
- 16/242 . . . . {Lymphotoxin [LT]}
- 16/243 . . . {Colony Stimulating Factors}
- 16/244 . . . {Interleukins [IL]}
- 16/245 . . . . {IL-1}
- 16/246 . . . . {IL-2}
- 16/247 . . . . {IL-4}
- 16/248 . . . . {IL-6}
- 16/249 . . . {Interferons}
- 16/26 . . against hormones {; against hormone releasing or  
inhibiting factors}
- 16/28 . . against receptors, cell surface antigens or cell  
surface determinants
- 16/2803 . . . {against the immunoglobulin superfamily}
- 16/2806 . . . . {against CD2}
- 16/2809 . . . . {against the T-cell receptor (TcR)-CD3  
complex}
- 16/2812 . . . . {against CD4}
- 16/2815 . . . . {against CD8}
- 16/2818 . . . . {against CD28 or CD152}
- 16/2821 . . . . {against ICAM molecules, e.g. CD50, CD54,  
CD102}
- 16/2824 . . . . {against CD58}
- 16/2827 . . . . {against B7 molecules, e.g. CD80, CD86}
- 16/283 . . . . {against Fc-receptors, e.g. CD16, CD32,  
CD64 ([C07K 16/2851](#))}
- 16/2833 . . . . {against MHC-molecules, e.g. HLA-  
molecules}
- 16/2836 . . . . {against CD106}
- 16/2839 . . . {against the integrin superfamily}
- 16/2842 . . . . {against integrin beta1-subunit-containing  
molecules, e.g. CD29, CD49}
- 16/2845 . . . . {against integrin beta2-subunit-containing  
molecules, e.g. CD11, CD18}
- 16/2848 . . . . {against integrin beta3-subunit-containing  
molecules, e.g. CD41, CD51, CD61}
- 16/2851 . . . {against the lectin superfamily, e.g. CD23,  
CD72}
- 16/2854 . . . . {against selectins, e.g. CD62}
- 16/2857 . . . {against nuclear receptors, e.g. retinoic acid  
receptor [RAR], RXR, orphan receptor}
- 16/286 . . . {against neuromediator receptors, e.g.  
serotonin receptor, dopamine receptor}
- 16/2863 . . . {against receptors for growth factors, growth  
regulators}
- 16/2866 . . . {against receptors for cytokines, lymphokines,  
interferons}
- 16/2869 . . . {against hormone receptors (for antibodies  
against neuromediator receptors  
[C07K 16/286](#))}
- 16/2872 . . . {against prion molecules, e.g. CD230}
- 16/2875 . . . {against the NGF/TNF superfamily, e.g.  
CD70, CD95L, CD153, CD154 (against NGF  
[C07K 16/22](#), against TNF [C07K 16/241](#))}
- 16/2878 . . . {against the NGF-receptor/TNF-receptor  
superfamily, e.g. CD27, CD30, CD40, CD95}
- 16/2881 . . . {against CD71}
- 16/2884 . . . {against CD44}
- 16/2887 . . . {against CD20}
- 16/289 . . . {against CD45}
- 16/2893 . . . {against CD52}
- 16/2896 . . . {against molecules with a "CD"-designation,  
not provided for elsewhere}
- 16/30 . . . from tumour cells
- 16/3007 . . . . {Carcino-embryonic Antigens}
- 16/3015 . . . . {Breast}
- 16/3023 . . . . {Lung}
- 16/303 . . . . {Liver or Pancreas}
- 16/3038 . . . . {Kidney, bladder}
- 16/3046 . . . . {Stomach, Intestines}
- 16/3053 . . . . {Skin, nerves, brain}
- 16/3061 . . . . {Blood cells}
- 16/3069 . . . . {Reproductive system, e.g. ovaria, uterus,  
testes, prostate}
- 16/3076 . . . . {against structure-related tumour-associated  
moieties}
- 16/3084 . . . . . {against tumour-associated gangliosides}
- 16/3092 . . . . . {against tumour-associated mucins}
- 16/32 . . against translation products of oncogenes
- 16/34 . . against blood group antigens
- 16/36 . . against blood coagulation factors
- 16/38 . . against protease inhibitors of peptide structure
- 16/40 . . against enzymes
- 16/42 . . against immunoglobulins
- 16/4208 . . {against an idiotypic determinant on Ig}
- 16/4216 . . . {against anti-viral Ig}
- 16/4225 . . . . {against anti-HIV Ig}
- 16/4233 . . . {against anti-bacterial Ig}
- 16/4241 . . . {against anti-human or anti-animal Ig}
- 16/425 . . . . {against anti-protozoal Ig}
- 16/4258 . . . . {against anti-receptor Ig}
- 16/4266 . . . . . {against anti-tumor receptor Ig}
- 16/4275 . . . . . {against anti-CD4 Ig}
- 16/4283 . . {against an allotypic or isotypic determinant on  
Ig}
- 16/4291 . . . {against IgE}
- 16/44 . . against material not provided for elsewhere {, e.g.  
haptens, metals, DNA, RNA, amino acids}
- 16/46 . . Hybrid immunoglobulins (hybrids of an  
immunoglobulin with a peptide not being an  
immunoglobulin [C07K 19/00](#))
- 16/461 . . {Igs containing Ig-regions, -domains or -residues  
form different species}
- 16/462 . . . {Igs containing a variable region (Fv) from one  
specie and a constant region (Fc) from another}
- 16/464 . . . {Igs containing CDR-residues from one specie  
grafted between FR-residues from another}
- 16/465 . . . . {with additional modified FR-residues}

16/467	. . . {Igs with modifications in the FR-residues only}	2317/56	. . variable (Fv) region, i.e. VH and/or VL
16/468	. . {Immunoglobulins having two or more different antigen binding sites, e.g. multifunctional antibodies}	2317/565	. . . Complementarity determining region [CDR]
17/00	<b>Carrier-bound or immobilised peptides (carrier-bound or immobilised enzymes C12N 11/00); Preparation thereof</b>	2317/567	. . . Framework region [FR]
17/02	. Peptides being immobilised on, or in, an organic carrier	2317/569	. . . Single domain, e.g. dAb, sdAb, VHH, VNAR or nanobody®
17/04	. . entrapped within the carrier, e.g. gel, hollow fibre	2317/60	. characterized by non-natural combinations of immunoglobulin fragments
17/06	. . attached to the carrier via a bridging agent	2317/62	. . comprising only variable region components
17/08	. . the carrier being a synthetic polymer	2317/622	. . . Single chain antibody (scFv)
17/10	. . the carrier being a carbohydrate	2317/624	. . . Disulfide-stabilized antibody (dsFv)
17/12	. . . Cellulose or derivatives thereof	2317/626	. . . Diabody or triabody
17/14	. Peptides being immobilised on, or in, an inorganic carrier	2317/64	. . comprising a combination of variable region and constant region components
19/00	<b>Hybrid peptides {, i.e. peptides covalently bound to nucleic acids, or non-covalently bound protein-protein complexes}</b>	2317/66	. . comprising a swap of domains, e.g. CH3-CH2, VH-CL or VL-CH1
2299/00	<b>Coordinates from 3D structures of peptides, e.g. proteins or enzymes</b>	2317/70	. characterized by effect upon binding to a cell or to an antigen
2317/00	<b>Immunoglobulins specific features</b>	2317/71	. . Decreased effector function due to an Fc-modification
2317/10	. characterized by their source of isolation or production	2317/72	. . Increased effector function due to an Fc-modification
2317/11	. . isolated from eggs	2317/73	. . Inducing cell death, e.g. apoptosis, necrosis or inhibition of cell proliferation
2317/12	. . isolated from milk	2317/732	. . . Antibody-dependent cellular cytotoxicity [ADCC]
2317/13	. . isolated from plants	2317/734	. . . Complement-dependent cytotoxicity [CDC]
2317/14	. . Specific host cells or culture conditions, e.g. components, pH or temperature	2317/74	. . Inducing cell proliferation
2317/20	. characterized by taxonomic origin	2317/75	. . Agonist effect on antigen
2317/21	. . from primates, e.g. man	2317/76	. . Antagonist effect on antigen, e.g. neutralization or inhibition of binding
2317/22	. . from camelids, e.g. camel, llama or dromedary	2317/77	. . Internalization into the cell
2317/23	. . from birds	2317/80	. remaining in the (producing) cell, i.e. intracellular antibodies or intrabodies
2317/24	. . containing regions, domains or residues from different species, e.g. chimeric, humanized or veneered	2317/81	. . functional in the endoplasmatic reticulum [ER] or the Golgi apparatus
2317/30	. characterized by aspects of specificity or valency	2317/82	. . functional in the cytoplasm, the inner aspect of the cell membrane, the nucleus or the mitochondria
2317/31	. . multispecific	2317/90	. characterized by (pharmaco)kinetic aspects or by stability of the immunoglobulin
2317/32	. . specific for a neo-epitope on a complex, e.g. antibody-antigen or ligand-receptor	2317/92	. . Affinity (KD), association rate (Ka), dissociation rate (Kd) or EC50 value
2317/33	. . Crossreactivity, e.g. for species or epitope, or lack of said crossreactivity	2317/94	. . Stability, e.g. half-life, pH, temperature or enzyme-resistance
2317/34	. . Identification of a linear epitope shorter than 20 amino acid residues or of a conformational epitope defined by amino acid residues	2318/00	<b>Antibody mimetics or scaffolds</b>
2317/35	. . Valency	2318/10	. Immunoglobulin or domain(s) thereof as scaffolds for inserted non-Ig peptide sequences, e.g. for vaccination purposes
2317/40	. characterized by post-translational modification	2318/20	. Antigen-binding scaffold molecules wherein the scaffold is not an immunoglobulin variable region or antibody mimetics
2317/41	. . Glycosylation, sialylation, or fucosylation	2319/00	<b>Fusion polypeptide</b>
2317/50	. characterized by immunoglobulin fragments	2319/01	. containing a localisation/targetting motif
2317/51	. . Complete heavy chain or Fd fragment, i.e. VH + CH1	2319/02	. . containing a signal sequence
2317/515	. . Complete light chain, i.e. VL + CL	2319/03	. . containing a transmembrane segment
2317/52	. . Constant or Fc region; Isotype	2319/033	. . containing a motif for targeting to the internal surface of the plasma membrane, e.g. containing a myristoylation motif
2317/522	. . . CH1 domain	2319/034	. . containing a motif for targeting to the periplasmic space of Gram negative bacteria as a soluble protein, i.e. signal sequence should be cleaved
2317/524	. . . CH2 domain		
2317/526	. . . CH3 domain		
2317/528	. . . CH4 domain		
2317/53	. . . Hinge		
2317/54	. . F(ab')2		
2317/55	. . Fab or Fab'		

- 2319/035 . . containing a signal for targeting to the external surface of a cell, e.g. to the outer membrane of Gram negative bacteria, GPI- anchored eukaryote proteins
- 2319/036 . . targeting to the medium outside of the cell, e.g. type III secretion
- 2319/04 . . containing an ER retention signal such as a C-terminal HDEL motif
- 2319/05 . . containing a GOLGI retention signal
- 2319/055 . . containing a signal for localisation to secretory granules (for exocytosis)
- 2319/06 . . containing a lysosomal/endosomal localisation signal
- 2319/07 . . containing a mitochondrial localisation signal
- 2319/08 . . containing a chloroplast localisation signal
- 2319/09 . . containing a nuclear localisation signal
- 2319/095 . . containing a nuclear export signal
- 2319/10 . . containing a tag for extracellular membrane crossing, e.g. TAT or VP22
- 2319/20 . containing a tag with affinity for a non-protein ligand
- 2319/21 . . containing a His-tag
- 2319/22 . . containing a Strep-tag
- 2319/23 . . containing a GST-tag
- 2319/24 . . containing a MBP (maltose binding protein)-tag
- 2319/30 . Non-immunoglobulin-derived peptide or protein having an immunoglobulin constant or Fc region, or a fragment thereof, attached thereto
- 2319/31 . fusions, other than Fc, for prolonged plasma life, e.g. albumin
- 2319/32 . fusions with soluble part of a cell surface receptor, "decoy receptors"
- 2319/33 . fusions for targeting to specific cell types, e.g. tissue specific targeting, targeting of a bacterial subspecies
- 2319/35 . containing a fusion for enhanced stability/folding during expression, e.g. fusions with chaperones or thioredoxin
- 2319/40 . containing a tag for immunodetection, or an epitope for immunisation
- 2319/41 . . containing a Myc-tag
- 2319/42 . . containing a HA(hemagglutinin)-tag
- 2319/43 . . containing a FLAG-tag
- 2319/50 . containing protease site
- 2319/55 . containing a fusion with a toxin, e.g. diphteria toxin
- 2319/60 . containing spectroscopic/fluorescent detection, e.g. green fluorescent protein [GFP]
- 2319/61 . containing an enzyme fusion for detection (lacZ, luciferase)
- 2319/70 . containing domain for protein-protein interaction
- 2319/705 . . containing a protein-A fusion
- 2319/71 . . containing domain for transcriptional activation, e.g. VP16
- 2319/715 . . . containing a domain for ligand dependent transcriptional activation, e.g. containing a steroid receptor domain
- 2319/72 . . containing SH2 domain
- 2319/73 . . containing coiled-coiled motif (leucine zippers)
- 2319/735 . . containing a domain for self-assembly, e.g. a viral coat protein (includes phage display)
- 2319/74 . . containing a fusion for binding to a cell surface receptor
- 2319/75 . . . containing a fusion for activation of a cell surface receptor, e.g. thrombopoeitin, NPY and other peptide hormones
- 2319/80 . containing a DNA binding domain, e.g. LacI or Tet-repressor
- 2319/81 . . containing a Zn-finger domain for DNA binding
- 2319/85 . containing an RNA binding domain
- 2319/90 . containing a motif for post-translational modification
- 2319/91 . . containing a motif for glycosylation
- 2319/912 . . . containing a GPI (phosphatidyl-inositol glycane) anchor
- 2319/915 . . containing a motif for acylation
- 2319/92 . . containing an intein ("protein splicing")domain
- 2319/95 . containing a motif/fusion for degradation (ubiquitin fusions, PEST sequence)