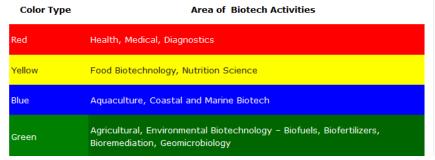


Factsheet: Life, Biotech Red

A technology field created by ip-search

1 Definition

The different fields of application for biotechnology are frequently divided by colour codes, as shown below. Red biotech refers to applications of biotechnology in the areas of health, medicine, and diagnostics.



References:

http://www.ejbiotechnology.info/index.php/ejbiotechnology/article/view/1114/1496 https://en.wikipedia.org/wiki/Biotechnology

2 CPC / IPC

According to the IPC-technology concordance table published by WIPO^{1,2)}, biotechnology is defined by the following IPC classifications: C07G, C07K, C12M, C12N, C12P, C12Q, and C12R (all including the hierarchically lower levels). For the present technology field, the IPC classifications were complemented with the corresponding CPC classifications, i.e. C07G, C07K, C12M, C12N, C12P, C12Q, C12R, and C12Y.

In addition, with update 03_21 the IPC and CPC classifications for bioinformatics, i.e. G16B and G06F19/10, and with update 03_24 C40B10, C40B30/04, and C40B30/06 (libraries) are included in order to cover biotechnology more comprehensively.

For the definition of red biotech within biotech, the following additional IPC/CPC classifications were used to filter for patents relating to medical applications of biotechnology:

A61B, A61C, A61D, A61K, A61P,

B82Y5, C07K14/47, C07K16, C07K2316, C07K2317, C07K2318, C07K2319,

C12Q1/6881, C12Q6883, C12Q1/15, C12Q1/6881, C12Q1/6883, C12Q2600/106, C12Q2600/112,

C12Q2600/118, C12Q2600/136, C12Q2600/156,

G01N33/48, G01N33/15, G01N2500, G01N2800,

G06F19/10, G06F19/30, G16B15/30

Y02A50/30

¹⁾ https://www.wipo.int/documents/2948119/3215563/wipo_ipc_technology.pdf

²⁾ https://www.wipo.int/edocs/pubdocs/en/wipo_pub_941_2017-chapter7.pdf



Patent classifications defining Biotechnology

2.1.1 Cooperative Patent Classification (CPC), International Patent Classification (IPC), and Japanese File Index (FI)

C CHEMISTRY; METALLURGY C40 COMBINATORIAL TECHNOLOGY C40B COMBINATORIAL CHEMISTRY; LIBRARIES, e.g. CHEMICAL LIBRARIES (in silico combinatorial libraries of nucleic acids, proteins or peptides G16B35/00; in silico combinatorial chemistry G16C20/60) C40B10/00 Directed molecular evolution of macromolecules, e.g. RNA, DNA or proteins Methods of screening libraries . by measuring the ability to specifically bind a target molecule, e.g. antibody-antigen binding, receptor-ligand binding C40B30/06 . by measuring effects on living organisms, tissues or cells COMPOUNDS OF UNKNOWN CONSTITUTION 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 C07D519/02; macromolecular	CPC/IPC/FI Symbols	Description		
C40B COMBINATORIAL CHEMISTRY, LIBRARIES, e.g. CHEMICAL LIBRARIES (in silico combinatorial libraries of nucleic acids, proteins or peptides G16B35/00, in silico combinatorial themistry G16C0060) Directed molecular evolution of macromolecules, e.g. RNA, DNA or proteins (ADB30/00) Methods of screening libraries Ly measuring the ability to specifically bind a target molecule, e.g. antibody-antigen binding, receptor-ligand binding LY measuring effects on living organisms, tissues or cells COMPOUNDS OF UNKNOWN CONSTITUTION PEPTIDES (peptides in foodstuffs A23; obtaining protein compositions for foodstuffs, working-up proteins for foodstuffs A23; obtaining protein compositions for foodstuffs, working-up proteins for foodstuffs A23; obtaining protein compositions for foodstuffs, 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. perazine-2.5-diones, C07D; ergot alkaloids of the cyclic peptide spot and their molecule any other peptide link than those which from their ring, e.g. perazine-2.5-diones, C07D; ergot alkaloids of the cyclic peptide volumis in their main calcium, and the preparation does not provide for a specific; but for a random sequence of the amino acid units, mompolyamides and block copolyamides derive from amino acids C08G69/00; macromolecular products derived from proteins C08H1/00; preparation of glue or gelatine C09H; single cell proteins, enzymes C12N; genetic collecting engineering processes involving enzymes C12Q; investigation or analysis of biological material G1N33/00) C12M APPARATUS FOR ENZYMOLOGY OR MICROBIOLOGY; (APPARATUS FOR CULTURING MICROORGANISMS FOR PRODUCING BIOMASS, FOR GROWING CELLS OR FOR OBTAINING FERMENTATION OR METABOLIC PRODUCTS, i.e. BIOREACTORS OR FERMENTERS) BIOREACTORS OR FERMENTERS) MICROORGANISMS OR ENZYME-SIOMPOSITION STHEREOF; PROPAGATING, PRESERVING, or MAINTAINING MICROORGANISMS, MUTATION OR GENETIC ENGINEERING; CULTURE MEDIA (microbiological testing media C12C1/00				
CA0BINATORIAL CHEMISTRY: LIBRARIES, e.g. CHEMICAL LIBRARIES (in silico combinatorial libraries of nucleic acids, proteins or peptides G16B35/00; in silico combinatorial chemistry G16C20(60) Directed molecular evolution of macromolecules, e.g. RNA, DNA or proteins C40B30/00 Methods of screening libraries Application of the proteins of the protein				
combinatorial libraries of nucleic acids, proteins or peptides G16B35/00; in silico combinatorial chemistry G16C20/00. C40B30/00 Directed molecular evolution of macromolecules, e.g. RNA, DNA or proteins Methods of screening libraries Ly measuring the ability to specifically bind a target molecule, e.g. antibody-antigen binding, receptor-ligand binding Ly measuring effects on living organisms, tissues or cells C07G COMPOUNDS OF UNKNOWN CONSTITUTION PEPTIDES (peptides in foodstuffs A23; obtaining protein compositions for foodstuffs, working-up proteins for foodstuffs, A23; obtaining protein compositions for foodstuffs, working-up proteins for foodstuffs, a23; obtaining protein compositions for foodstuffs, 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 C07D519/02; macromolecular compounds having statistically distributed amino acid units in their mideless, i.e. when the preparation does not provide for a specific; but for a random sequence of the amino acid units, homeoplyamides and block copolyamides derived from amino acids C08G69/00; macromolecular products derived from proteins C08H1/00; preparation of glue or gelatine C09H; single cell proteins, enzymes C12N; genetic engineering processes for obtaining peptides C12N15/00; compositions for measuring or testing processes involving enzymes C12Q; investigation or analysis of biological material G01N33/00) C12M APPARATUS FOR ENZYMOLOGY OR MICROBIOLOGY; (APPARATUS FOR CULTURING MICROORGANISMS FOR PRODUCING BIOMASS, FOR GROWING CLLS OR FOR OBTAINING FERMENTATION OR METABOLIC PRODUCTS, i.e. BIOREACTORS OR FERMENTERS) MICROORGANISMS OR ENZYME-USING PROCESSES TO SYNTHESISE A DESIRED CHEMICAL COMPOUND OR COMPOSITION OR TO SEPARATE OPTICAL ISOMERS FROM A RACEMIN MIXTURE ((Ibrewing of beer C12C) reproducing vinegar C12J; producing specific peptides or proteins C07K; producing enzymes or				
Adb830/00 Aby measuring the ability to specifically bind a target molecule, e.g. antibody-antigen binding, receptor-ligand binding CA0830/06 by measuring effects on living organisms, tissues or cells COMPOUNDS OF UNKNOWN CONSTITUTION PEPTIDES (peptides in foodstuffs A23; obtaining protein compositions for foodstuffs, working-up proteins for foodstuffs A23; preparations for medicinal purposes A61K; peptides containing beta-lactar mings COTD; cyclic dipeptides not having in their molecule any other peptide link than those which form their ring, e.g. piperazine-2,5-diones, COTD; ergot alkaloids of the cyclic peptide to the having in their molecule any other peptide link than those which form their ring, e.g. piperazine-2,5-diones, COTD; ergot alkaloids of the cyclic peptide type COTD519/02; macromolecular compounds having statistically distributed amino acid units in their molecules, i.e. when the preparation acid valis, homopolyamides and block copolyamides derived from amino acid considerable of the amino acid units, homopolyamides and block copolyamides derived from amino acid considerable of the amino acid units, homopolyamides and block copolyamides derived from amino acid considerable of the amino acid units, homopolyamides and block copolyamides derived from amino acid considerable of the amino acid units, homopolyamides and block copolyamides derived from amino acid considerable of the amino acid units, homopolyamides and block copolyamides derived from amino acid considerable of the amino acid units, homopolyamides and block copolyamides derived from amino acid considerable of the amino acid units, homopolyamides and block copolyamides derived from amino acid considerable of the amino acid units, homopolyamides derived from amino acid considerable of the amino acid units, homopolyamides and block copolyamides derived from amino acid considerable of the amino acid units, homopolyamides and block copolyamides derived from amino acid units, homopolyamides and considerable of the amino acid units, homopo	0400	combinatorial libraries of nucleic acids, proteins or peptides G16B35/00; in silico		
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COTE COTK PEPTIDES (peptides in foodstuffs A23; obtaining protein compositions for foodstuffs, A27; obtaining protein compositions for foodstuffs, A23; obtaining brotein compositions for foodstuffs, A23; obtaining brotein compositions for foodstuffs, peptides containing beta-lactam rings COTD; cyclic dipeptides not having in their molecule any other peptide link than those which form their ring, e.g. piperazine; molecule any other peptide link than those which form their ring, e.g. piperazine; 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 C0869/00; macromolecular products derived from proteins C08H1/00; preparation of glue or gelatine C09H; single cell proteins, enzymes C12N; genetic engineering processes for obtaining peptides C12NH5/00; compositions C08H1/00; preparation of glue or gelatine C09H; single cell proteins, enzymes C12N; genetic engineering processes involving enzymes C12Q; investigation or analysis of biological material G01N33/00) C12M APPARATUS FOR ENZYMOLOGY OR MICROBIOLOGY; (APPARATUS FOR CULTURING MICROORGANISMS FOR PRODUCING BIOMASS, FOR GROWING CELLS OR FOR OBTAINING FERMENTATION OR METABOLIC PRODUCTS, i.e. BIOREACTORS OR FERMENTERS) MICROORGANISMS OR ENZYMES; COMPOSITIONS THEREOF; PROPAGATING PRESERVING, OR MAINTAINING MICROORGANISMS; MUTATION OR GENETIC ENGINEERING; CULTURE MEDIA (microbiological testing media C12Q1/00) C12P FERMENTATION OR ENZYME-USING PROCESSES TO SYNTHESISE A DESIRED CHEMICAL COMPOUND OR COMPOSITION OR TO SEPARATE OPTICAL ISOMERS FROM A RACEMIC MICROWING ENZYME TO SEPARATE OPTICAL ISOMERS FROM A RACEMIC MIXTURE ((Drewing of beet prical) processes involving enzymes or microorganisms C12Q; measuring or testing processes involving enzymes or microorganisms C12Q; measuring or testing processes involving enzymes or microorganisms C12Q; measuring or testing process	<u>C40B30/04</u>	. by measuring the ability to specifically bind a target molecule, e.g. antibody-antigen		
PEPTIDES (peptides in foodstuffs A23; obtaining protein compositions for foodstuffs, working-up proteins for foodstuffs A23; preparations for medicinal purposes A61K; peptides containing beta-lactam rings CO7D; cyclic dispetides not having in their molecule any other peptide link than those which form their ring, e.p. piperazine-2,5-diones, CO7D; regrot alkaloids of the cyclic peptide type CO7D519/02; 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 C08G69/00; macromolecular products derived from proteins C08H1/00; preparation of glue or gelatine C09H; single cell proteins, enzymes C12N; genetic engineering processes for obtaining peptides C12N15/00; compositions for measuring or testing processes involving enzymes C12Q; investigation or analysis of biological material G01N33/00) C12M APPARATUS FOR ENZYMOLOGY OR MICROBIOLOGY; (APPARATUS FOR CULTURING MICROORGANISMS FOR PRODUCING BIOMASS, FOR GROWING CELLS OR FOR OBTAINING FERMENTATION OR METABOLIC PRODUCTS, i.e. BIOREACTORS OR FERMENTERS) MICROORGANISMS OR ENZYMES; COMPOSITIONS THEREOF; PROPAGATING, PRESERVING, OR MAINTAINING MICROORGANISMS; MUTATION OR GENETIC ENCINEERING; CULTURE MEDIA (microbiological testing media C12Q1/00) C12P FERMENTATION OR ENZYME-USING PROCESSES TO SYNTHESISE A DESIRED CHEMICAL COMPOUND OR COMPOSITION OR TO SEPARATE OPTICAL ISOMERS FROM A RACEMIC MIXTURE ((trewing of beer C12C; producing vinegar C12J; producing specific peptides or proteins C07K; producing enzymes C12N9/00; DNA or RNA concerning genetic engineering, vectors, e.g., plasmids, or their isolation, preparation or purification C12N15/00; measuring or testing processes involving enzymes or microorganisms C12Q; measuring or testing processes involving enzymes or microorganisms (C12Q) and producesses involving enzymes or microorganisms (C12Q) and producesses	C40B30/06	. by measuring effects on living organisms, tissues or cells		
working-up proteins for foodstuffs A23L; 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 alikaloids of the cyclic peptide type C07D51902; 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 C08G69/00; macromolecular products derived from proteins C08H1/00; preparation of glue or gelatine C09H; single cell proteins, enzymes C12N; genetic engineering processes involving enzymes C12Q; investigation or analysis of biological material G01N33/00. C12M APPARATUS FOR ENZYMOLOGY OR MICROBIOLOGY; (APPARATUS FOR CULTURING MICROORGANISMS FOR PRODUCING BIOMASS, FOR GROWING CELLS OR FOR OBTAINING FERMENTATION OR METABOLIC PRODUCTS, i.e. BIOREACTORS OR FERMENTERS) MICROORGANISMS OR ENZYMES; COMPOSITIONS THEREOF; PROPAGATING, PRESERVING, OR MAINTAINING MICROORGANISMS; MUTATION OR GENETIC ENGINEERING; CULTURE MEDIA (microbiological testing media C12Q1/00) FERMENTATION OR ENZYME-USING PROCESSES TO SYNTHESISE A DESIRED CHEMICAL COMPOUND OR COMPOSITION OR TO SEPARATE OPTICAL ISOMERS FROM A RACEMIC MIXTURE (forewing of beer C12C; producing vinegar C12J; producing specific peptides or proteins COTK; producing enzymes C12N9/00; DNA or RNA concerning genetic engineering, vectors, e.g. plasmids, or their isolation preparation or purification C12N15/00; measuring or testing processes involving enzymes or microorganisms C12Q; measuring or testing processes involving enzymes or microorganisms C12Q; measuring or testing processes involving enzymes or microorganisms C12Q; measuring or testing processes involving enzymes or microorganisms C12Q; measuring or testing processes involving enzymes or microorganisms C12Q; measuring or testing processes	<u>C07G</u>	COMPOUNDS OF UNKNOWN CONSTITUTION		
CULTURING MICROORGANISMS FOR PRODUCING BIOMASS, FOR GROWING CELLS OR FOR OBTAINING FERMENTATION OR METABOLIC PRODUCTS, i.e. BIOREACTORS OR FERMENTERS) C12N MICROORGANISMS OR ENZYMES; COMPOSITIONS THEREOF; PROPAGATING, PRESERVING, OR MAINTAINING MICROORGANISMS; MUTATION OR GENETIC ENGINEERING; CULTURE MEDIA (microbiological testing media C12Q1/00) C12P FERMENTATION OR ENZYME-USING PROCESSES TO SYNTHESISE A DESIRED CHEMICAL COMPOUND OR COMPOSITION OR TO SEPARATE OPTICAL ISOMERS FROM A RACEMIC MIXTURE ((brewing of beer C12C; producing vinegar C12J; producing specific peptides or proteins C07K; producing enzymes C12N9/00; DNA or RNA concerning genetic engineering, vectors, e.g. plasmids, or their isolation, preparation or purification C12N15/00; measuring or testing processes involving enzymes or microorganisms C12Q; measuring or testing processes involving enzymes or microorganisms C12Q1; measuring or testing processes involving nucleic acid amplification reactions C12Q1/6844; fermentation processes to form a food composition, A21 or A23; compounds in general, see the relevant compound class, e.g. C01, C07)} C12Q MEASURING OR TESTING PROCESSES INVOLVING ENZYMES, NUCLEIC ACIDS OR MICROORGANISMS (immunoassay G01N33/53); COMPOSITIONS OR TEST PAPERS THEREFOR; PROCESSES OF PREPARING SUCH COMPOSITIONS; CONDITION-RESPONSIVE CONTROL IN MICROBIOLOGICAL OR ENZYMOLOGICAL PROCESSES C12R INDEXING SCHEME ASSOCIATED WITH SUBCLASSES C12C - C12Q, RELATING TO MICROORGANISMS G PHYSICS BIOINFORMATICS, i.e. INFORMATION AND COMMUNICATION TECHNOLOGY [ICT] SPECIALLY ADAPTED FOR GENETIC OR PROTEIN-RELATED DATA	<u>C07K</u>	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 C07D519/02; 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 C08G69/00; macromolecular products derived from proteins C08H1/00; preparation of glue or gelatine C09H; single cell proteins, enzymes C12N; genetic engineering processes for obtaining peptides C12N15/00; compositions for measuring or testing processes involving enzymes C12Q; investigation or analysis of biological material		
PRESERVING, OR MAINTAINING MICROORGANISMS; MUTATION OR GENETIC ENGINEERING; CULTURE MEDIA (microbiological testing media C12Q1/00) C12P FERMENTATION OR ENZYME-USING PROCESSES TO SYNTHESISE A DESIRED CHEMICAL COMPOUND OR COMPOSITION OR TO SEPARATE OPTICAL ISOMERS FROM A RACEMIC MIXTURE { (brewing of beer C12C; producing vinegar C12J; producing specific peptides or proteins C07K; producing enzymes C12N9/00; DNA or RNA concerning genetic engineering, vectors, e.g. plasmids, or their isolation, preparation or purification C12N15/00; measuring or testing processes involving enzymes or microorganisms C12Q; measuring or testing processes involving nucleic acid amplification reactions C12Q1/6844; fermentation processes to form a food composition, A21 or A23; compounds in general, see the relevant compound class, e.g. C01, C07}} MEASURING OR TESTING PROCESSES INVOLVING ENZYMES, NUCLEIC ACIDS OR MICROORGANISMS (immunoassay G01N33/53); COMPOSITIONS OR TEST PAPERS THEREFOR; PROCESSES OF PREPARING SUCH COMPOSITIONS; CONDITION-RESPONSIVE CONTROL IN MICROBIOLOGICAL OR ENZYMOLOGICAL PROCESSES C12R INDEXING SCHEME ASSOCIATED WITH SUBCLASSES C12C - C12Q, RELATING TO MICROORGANISMS C12Y ENZYMES G PHYSICS BIOINFORMATICS, i.e. INFORMATION AND COMMUNICATION TECHNOLOGY [ICT] SPECIALLY ADAPTED FOR GENETIC OR PROTEIN-RELATED DATA	<u>C12M</u>	CULTURING MICROORGANISMS FOR PRODUCING BIOMASS, FOR GROWING CELLS OR FOR OBTAINING FERMENTATION OR METABOLIC PRODUCTS, i.e.		
CHEMICAL COMPOUND OR COMPOSITION OR TO SEPARATE OPTICAL ISOMERS FROM A RACEMIC MIXTURE {(brewing of beer C12C; producing vinegar C12J; producing specific peptides or proteins C07K; producing enzymes C12N9/00; DNA or RNA concerning genetic engineering, vectors, e.g. plasmids, or their isolation, preparation or purification C12N15/00; measuring or testing processes involving enzymes or microorganisms C12Q; measuring or testing processes involving nucleic acid amplification reactions C12Q1/6844; fermentation processes to form a food composition, A21 or A23; compounds in general, see the relevant compound class, e.g. C01, C07)} C12Q MEASURING OR TESTING PROCESSES INVOLVING ENZYMES, NUCLEIC ACIDS OR MICROORGANISMS (immunoassay G01N33/53); COMPOSITIONS OR TEST PAPERS THEREFOR; PROCESSES OF PREPARING SUCH COMPOSITIONS; CONDITION-RESPONSIVE CONTROL IN MICROBIOLOGICAL OR ENZYMOLOGICAL PROCESSES C12R INDEXING SCHEME ASSOCIATED WITH SUBCLASSES C12C - C12Q, RELATING TO MICROORGANISMS C12Y ENZYMES G PHYSICS BIOINFORMATICS, i.e. INFORMATION AND COMMUNICATION TECHNOLOGY [ICT] SPECIALLY ADAPTED FOR GENETIC OR PROTEIN-RELATED DATA	<u>C12N</u>	MICROORGANISMS OR ENZYMES; COMPOSITIONS THEREOF; PROPAGATING, PRESERVING, OR MAINTAINING MICROORGANISMS; MUTATION OR GENETIC		
OR MICROORGANISMS (immunoassay G01N33/53); COMPOSITIONS OR TEST PAPERS THEREFOR; PROCESSES OF PREPARING SUCH COMPOSITIONS; CONDITION-RESPONSIVE CONTROL IN MICROBIOLOGICAL OR ENZYMOLOGICAL PROCESSES C12R INDEXING SCHEME ASSOCIATED WITH SUBCLASSES C12C - C12Q, RELATING TO MICROORGANISMS ENZYMES G PHYSICS BIOINFORMATICS, i.e. INFORMATION AND COMMUNICATION TECHNOLOGY [ICT] SPECIALLY ADAPTED FOR GENETIC OR PROTEIN-RELATED DATA	<u>C12P</u>	CHEMICAL COMPOUND OR COMPOSITION OR TO SEPARATE OPTICAL ISOMERS FROM A RACEMIC MIXTURE {(brewing of beer C12C; producing vinegar C12J; producing specific peptides or proteins C07K; producing enzymes C12N9/00; DNA or RNA concerning genetic engineering, vectors, e.g. plasmids, or their isolation, preparation or purification C12N15/00; measuring or testing processes involving enzymes or microorganisms C12Q; measuring or testing processes involving nucleic acid amplification reactions C12Q1/6844; fermentation processes to form a food composition, A21 or A23; compounds in general, see the relevant compound class,		
TO MICROORGANISMS C12Y ENZYMES G PHYSICS G16B BIOINFORMATICS, i.e. INFORMATION AND COMMUNICATION TECHNOLOGY [ICT] SPECIALLY ADAPTED FOR GENETIC OR PROTEIN-RELATED DATA	<u>C12Q</u>	OR MICROORGANISMS (immunoassay G01N33/53); COMPOSITIONS OR TEST PAPERS THEREFOR; PROCESSES OF PREPARING SUCH COMPOSITIONS; CONDITION-RESPONSIVE CONTROL IN MICROBIOLOGICAL OR		
G PHYSICS <u>G16B</u> BIOINFORMATICS, i.e. INFORMATION AND COMMUNICATION TECHNOLOGY [ICT] SPECIALLY ADAPTED FOR GENETIC OR PROTEIN-RELATED DATA				
G16B BIOINFORMATICS, i.e. INFORMATION AND COMMUNICATION TECHNOLOGY [ICT] SPECIALLY ADAPTED FOR GENETIC OR PROTEIN-RELATED DATA		ENZYMES		
[ICT] SPECIALLY ADAPTED FOR GENETIC OR PROTEIN-RELATED DATA	G	PHYSICS		
	<u>G16B</u>	[ICT] SPECIALLY ADAPTED FOR GENETIC OR PROTEIN-RELATED DATA		

The complete description of the CPC classes with IPC- and FI-concordances can be found in the Internet at https://www.wipo.int/classifications/ipc/ipcpub/?notion=scheme&fipcpc=yes.



Patent classifications used to filter out Red Biotechnology

2.1.2 Cooperative Patent Classification (CPC), International Patent Classification (IPC), and Japanese File Index (FI)

	Japanese File Index (FI)				
CPC/IPC/FI Symbols	Description				
В	PERFORMING OPERATIONS; TRANSPORTING				
B82	NANOTECHNOLOGY				
B82Y	SPECIFIC USES OR APPLICATIONS OF NANOSTRUCTURES; MEASUREMENT OR ANALYSIS OF NANOSTRUCTURES; MANUFACTURE OR TREATMENT OF NANOSTRUCTURES				
<u>B82Y5/00</u>	Nanobiotechnology or nanomedicine, e.g. protein engineering or drug delivery				
С	CHEMISTRY; METALLURGY				
C07	ORGANIC CHEMISTRY				
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 C07D519/02; 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 C08G69/00; macromolecular products derived from proteins C08H1/00; preparation of glue or gelatine C09H; single cell proteins, enzymes C12N; genetic engineering processes for obtaining peptides C12N15/00; compositions for measuring or testing processes involving enzymes C12Q; investigation or analysis of biological material G01N33/00)				
C07K14/00	Peptides having more than 20 amino acids; Gastrins; Somatostatins; Melanotropins; Derivatives thereof				
C07K14/435	. from animals; from humans				
C07K14/46	from vertebrates				
C07K14/47	from mammals				
<u>C07K16/00</u>	Immunoglobulins [IGs], e.g. monoclonal or polyclonal antibodies {(antibodies with enzymatic activity, e.g. abzymes C12N9/0002)}				
C07K2317/00	Immunoglobulins specific features				
C07K2318/00	Antibody mimetics or scaffolds				
C07K2319/00	Fusion polypeptide				
C12	BIOCHEMISTRY; BEER; SPIRITS; WINE; VINEGAR; MICROBIOLOGY; ENZYMOLOGY; MUTATION OR GENETIC ENGINEERING				
C12Q	MEASURING OR TESTING PROCESSES INVOLVING ENZYMES, NUCLEIC ACIDS OR MICROORGANISMS (immunoassay G01N33/53); COMPOSITIONS OR TEST PAPERS THEREFOR; PROCESSES OF PREPARING SUCH COMPOSITIONS; CONDITION-RESPONSIVE CONTROL IN MICROBIOLOGICAL OR ENZYMOLOGICAL PROCESSES				
C12Q1/00	Measuring or testing processes involving enzymes, nucleic acids or microorganisms (measuring or testing apparatus with condition measuring or sensing means, e.g. colony counters, C12M1/34); Compositions therefor; Processes of preparing such compositions				
C12Q1/68	. involving nucleic acids				
C12Q1/6876	Nucleic acid products used in the analysis of nucleic acids, e.g. primers or probes				
C12Q1/6881	for tissue or cell typing, e.g. human leukocyte antigen [HLA] probes				
C12Q1/6883	for diseases caused by alterations of genetic material				
C12Q2600/00	Oligonucleotides characterized by their use				
C12Q2600/106	. Pharmacogenomics, i.e. genetic variability in individual responses to drugs and drug metabolism				
C12Q2600/112	. Disease subtyping, staging or classification				
C12Q2600/118	. Prognosis of disease development				
C12Q2600/136	. Screening for pharmacological compounds				
C12Q2600/156	. Polymorphic or mutational markers				



CPC/IPC/FI Symbols	Description			
G	PHYSICS			
G01	MEASURING; TESTING			
G01N	INVESTIGATING OR ANALYSING MATERIALS BY DETERMINING THEIR CHEMICAL OR PHYSICAL PROPERTIES (measuring or testing processes other than immunoassay, involving enzymes or microorganisms C12M, C12Q)			
G01N33/00	Investigating or analysing materials by specific methods not covered by groups G01N1/00 - G01N31/00			
<u>G01N33/15</u>	. Medicinal preparations {; Physical properties thereof, e.g. dissolubility (drug screening with animal cells G01N33/5008)}			
<u>G01N33/48</u>	. Biological material, e.g. blood, urine (G01N33/02, G01N33/26, G01N33/44, G01N33/46 take precedence); Haemocytometers (counting blood corpuscules distributed over a surface by scanning the surface G06M11/02)			
<u>G01N2500/00</u>	Screening for compounds of potential therapeutic value			
<u>G01N2800/00</u>	Detection or diagnosis of diseases			
G16	INFORMATION AND COMMUNICATION TECHNOLOGY [ICT] SPECIALLY ADAPTED FOR SPECIFIC APPLICATION FIELDS			
G16B	BIOINFORMATICS, i.e. INFORMATION AND COMMUNICATION TECHNOLOGY [ICT] SPECIALLY ADAPTED FOR GENETIC OR PROTEIN-RELATED DATA PROCESSING IN COMPUTATIONAL MOLECULAR BIOLOGY			
G16B15/00	ICT specially adapted for analysing two-dimensional or three-dimensional molecular structures, e.g. structural or functional relations or structure alignment			
G16B15/30	. Drug targeting using structural data; Docking or binding prediction			
Y	GENERAL TAGGING OF NEW TECHNOLOGICAL DEVELOPMENTS; GENERAL TAGGING OF CROSS-SECTIONAL TECHNOLOGIES SPANNING OVER SEVERAL SECTIONS OF THE IPC; TECHNICAL SUBJECTS COVERED BY FORMER USPC CROSS-REFERENCE ART COLLECTIONS [XRACs] AND DIGESTS			
Y02	TECHNOLOGIES OR APPLICATIONS FOR MITIGATION OR ADAPTATION AGAINST CLIMATE CHANGE			
Y02A	TECHNOLOGIES FOR ADAPTATION TO CLIMATE CHANGE			
Y02A50/00	in human health protection, e.g. against extreme weather			
<u>Y02A50/30</u>	. Against vector-borne diseases, e.g. mosquito-borne, fly-borne, tick-borne or waterborne diseases whose impact is exacerbated by climate change			
A	HUMAN NECESSITIES			
<u>A61B</u>	DIAGNOSIS; SURGERY; IDENTIFICATION (analysing biological material G01N, e.g. G01N33/48; obtaining records using waves other than optical waves, in general G03B42/00)			
<u>A61C</u>	DENTISTRY; APPARATUS OR METHODS FOR ORAL OR DENTAL HYGIENE (non-driven toothbrushes A46B; {tongue scrapers A61B17/24;} preparations for dentistry A61K6/00; preparations for cleaning the teeth or mouth A61K8/00, A61Q11/00)			
<u>A61D</u>	VETERINARY INSTRUMENTS, IMPLEMENTS, TOOLS, OR METHODS			
<u>A61K</u>	PREPARATIONS FOR MEDICAL, DENTAL OR TOILETRY PURPOSES (devices or methods specially adapted for bringing pharmaceutical products into particular physical or administering forms A61J3/00; chemical aspects of, or use of materials for deodorisation of air, for disinfection or sterilisation, or for bandages, dressings, absorbent pads or surgical articles A61L; soap compositions C11D)			
<u>A61P</u>	SPECIFIC THERAPEUTIC ACTIVITY OF CHEMICAL COMPOUNDS OR MEDICINAL PREPARATIONS			

The complete description of the CPC classes with IPC- and FI-concordances can be found in the Internet at https://www.wipo.int/classifications/ipc/ipcpub/?notion=scheme&fipcpc=yes.



2.1.3 Cooperative Patent Classification (CPC), International Patent Classification (IPC), and Japanese File Index (FI)

CPC/IPC/FI Symbols	,		
•	Description		
A	HUMAN NECESSITIES		
<u>A61B</u>	DIAGNOSIS; SURGERY; IDENTIFICATION (analysing biological material G01N, e.g. G01N33/48; obtaining records using waves other than optical waves, in general G03B42/00)		
<u>A61C</u>	DENTISTRY; APPARATUS OR METHODS FOR ORAL OR DENTAL HYGIENE (non-driven toothbrushes A46B; {tongue scrapers A61B17/24;} preparations for dentistry A61K6/00; preparations for cleaning the teeth or mouth A61K8/00, A61Q11/00)		
<u>A61D</u>	VETERINARY INSTRUMENTS, IMPLEMENTS, TOOLS, OR METHODS		
<u>A61K</u>	PREPARATIONS FOR MEDICAL, DENTAL, OR TOILET PURPOSES (devices or methods specially adapted for bringing pharmaceutical products into particular physical or administering forms A61J3/00;		
A	HUMAN NECESSITIES		
В	PERFORMING OPERATIONS; TRANSPORTING		
B82	NANOTECHNOLOGY		
B82Y	SPECIFIC USES OR APPLICATIONS OF NANOSTRUCTURES; MEASUREMENT OR ANALYSIS OF NANOSTRUCTURES; MANUFACTURE OR TREATMENT OF NANOSTRUCTURES		
B82 Y5/00	Nanobiotechnology or nanomedicine, e.g. protein engineering or drug delivery		
С	CHEMISTRY; METALLURGY		
C07	ORGANIC CHEMISTRY		
C07K	PEPTIDES (peptides in foodstuffs A23; obtaining protein compositions for foodstuffs, working-up proteins for foodstuffs A23J; preparations for medicinal purposes A61K;		
C07K14/00	Peptides having more than 20 amino acids; Gastrins; Somatostatins; Melanotropins; Derivatives thereof		
C07K14/435	. from animals; from humans		
C07K14/46	from vertebrates		
C07K14/47	from mammals		
<u>C07K16/00</u>	Immunoglobulins [IGs], e.g. monoclonal or polyclonal antibodies {(antibodies with enzymatic activity, e.g. abzymes C12N9/0002)}		
C07K2317/00	Immunoglobulins specific features		
C07K2318/00	Antibody mimetics or scaffolds		
C07K2319/00	Fusion polypeptide		
C12	BIOCHEMISTRY; BEER; SPIRITS; WINE; VINEGAR; MICROBIOLOGY; ENZYMOLOGY; MUTATION OR GENETIC ENGINEERING		
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<u>C12Q2600/106</u>	. Pharmacogenomics, i.e. genetic variability in individual responses to drugs and drug metabolism		
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<u>G01N33/48</u>	. Biological material, e.g. blood, urine (G01N33/02, G01N33/26, G01N33/44, G01N33/46 take precedence); Haemocytometers (counting blood corpuscules distributed over a surface by scanning the surface G06M11/02)		
<u>G01N2500/00</u>	Screening for compounds of potential therapeutic value		
<u>G01N2800/00</u>	Detection or diagnosis of diseases		
G06	COMPUTING; CALCULATING; COUNTING		
G06F	ELECTRIC DIGITAL DATA PROCESSING (computer systems based on specific computational models G06N)		
G06F19/00	Digital computing or data processing equipment or methods, specially adapted for specific applications (specially adapted for specific functions G06F17/00; data processing systems or methods specially adapted for administrative, commercial, financial, managerial, supervisory or forecasting purposes G06Q; healthcare informatics G16H)		
<u>G06F19/30</u>	. {Medical informatics, i.e. computer-based analysis or dissemination of patient or disease data (measuring for diagnostic purposes A61B5/00; recognising patterns in biomedical signals G06K9/00496; data processing systems or methods specially adapted for administrative or managerial aspects of healthcare or welfare G06Q50/22)}		
G16	INFORMATION AND COMMUNICATION TECHNOLOGY [ICT] SPECIALLY ADAPTED FOR SPECIFIC APPLICATION FIELDS		
G16B	BIOINFORMATICS, i.e. INFORMATION AND COMMUNICATION TECHNOLOGY [ICT] SPECIALLY ADAPTED FOR GENETIC OR PROTEIN-RELATED DATA PROCESSING IN COMPUTATIONAL MOLECULAR BIOLOGY		
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<u>G16B15/30</u>	. Drug targeting using structural data; Docking or binding prediction		
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3 Keywords

No additional keywords are used for the tag definition, which is based exclusively on patent classifications.

Confidence Interval for Precision

Precision is expressed in percent of relevant counts. The 95 % confidence interval for the precision of a technology field is assessed on a set of 100 randomly selected patent families based on a binomial distribution. In the sighting, 98 of 102 randomly selected documents of the tag Life_Biotech_Red_03_24 appeared relevant:

Precision Confidence Interval: 91 - 99 %

Patent families found not relevant in the random samples were eliminated from the collection.



4 History

Version	latest update	No. of patent families (incl. inactives)	remarks
_05_19	22.05.2019	324'887 149'034 active	Update, refined classifications
_09_19	28.08.2019	335'951 152'716 active	no change
_12_19	28.11.2019	329'850 149'292 active	Update, refined classifications and exclusions
_03_20	09.03.2020	342'624 156'666 active	Update, no change
_09_20	17.08.2020	357'423 157'181 active	Update, refined classifications and exclusions
_03_21	09.03.2021	377'655 167'468 active	Update, refined classifications and exclusions
_09_21	17.08.2021	393'272 173'648 active	Update, no change
_03_22	08.03.2022	409'499 183'150 active	Update, review without changes
_09_22	13.09.2022	426'606 194'719 active	Update, review without changes
_03_23	28.03.2023	442'930 201'529 active	Update, review without changes, determination of precision
_09_23	22.09.2023	466'336 218'007 active	Update, review without changes
_03_24	28.03.2024	485'554 231'129 active	Update, C40B10, C40B30/04, C40B30/06 added to biotech classifications, obsolete classifications removed
_09_24	16.09.2024	508'241 242'926 active	Refresh without changes of query
_03_25	25.03.2025	525'997 254'335 active	Refresh without changes of query



5 Contact

For specific information regarding the technology field please contact info@ip-search.swiss