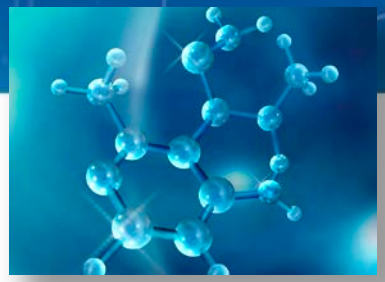
PatCom

The Value of IPC Codes

The Views from Database Producers and Distributors



Paul Peters
February 2017

STN® THE CHOICE OF PATENT EXPERTS™

FIZ Karlsruhe
Leibniz Institute for Information Infrastructure

Clarivate Analytics

CAS®
A DIVISION OF THE AMERICAN CHEMICAL SOCIETY

International Patent Classification codes have great value for the patent community

- A hierarchy of codes for classifying the subject content of patents
    - 8 sections
    - Nearly 80,000 subdivisions
- Assigned very early in the patent lifecycle
- Kept up-to-date via yearly revisions
    - Reflects the latest advances in technology
- Quarterly reclassifications
- Allow precise identification of a set of relevant patents

CAS depends on IPCs for building the CAplus database

- Coverage is guaranteed for certain IPC codes known to always have chemistry and chemistry-relevant content

IPC Reform List I - Guaranteed Coverage

This list has the IPC codes from the 2006 IPC Reform and subsequent updates that are used by CAS for guaranteed coverage.

Class/ Subclass	Subject Matter	Groups Guaranteed Coverage
	A: HUMAN NECESSITIES	
A01N	Biocides, pesticides, herbicides, and plant growth regulators	27/00-61/02, 65/02
A21D	Baking additives and preservatives	2/02-2/32
A23D	Edible oils or fats, e.g., margarines, cooking oils and shortenings	7/005-7/01, 9/007-9/013
A23L	Miscellaneous food preparation and preservation	3/34-3/3409, 3/3427-3/3436, 3/3454-3/3463, 3/3481-3/3562, 3/358, 3/37, 3/42
A24B	Manufacture and preparation of tobacco	15/00-15/20, 15/26-15/42
A61K	Medical, dental and toilet preparations	6/00-6/10, 8/19-8/91, 9/107-9/113, 9/28-9/46, 9/56-9/66, 31/00-33/44, 38/00-38/58, 47/00-47/44, 47/48-47/69, 51/00-103/40
A61L	Sterilization, disinfection and deodorization	9/02, 15/12, 15/22-15/34, 15/38
	B: PERFORMING OPERATIONS; TRANSPORTING	
B01D	Separation	3/12. 7/02, 9/00-15/42, 53/48-53/72, 53/86, 53/90, 53/94, 59/00-61/04, 61/14-61/16, 61/36-61/44, 61/56-61/58, 65/06-65/08, 71/00-71/82

Of the 680 newly defined IPC codes for 2017, 370 were added to the CAplus coverage lists.

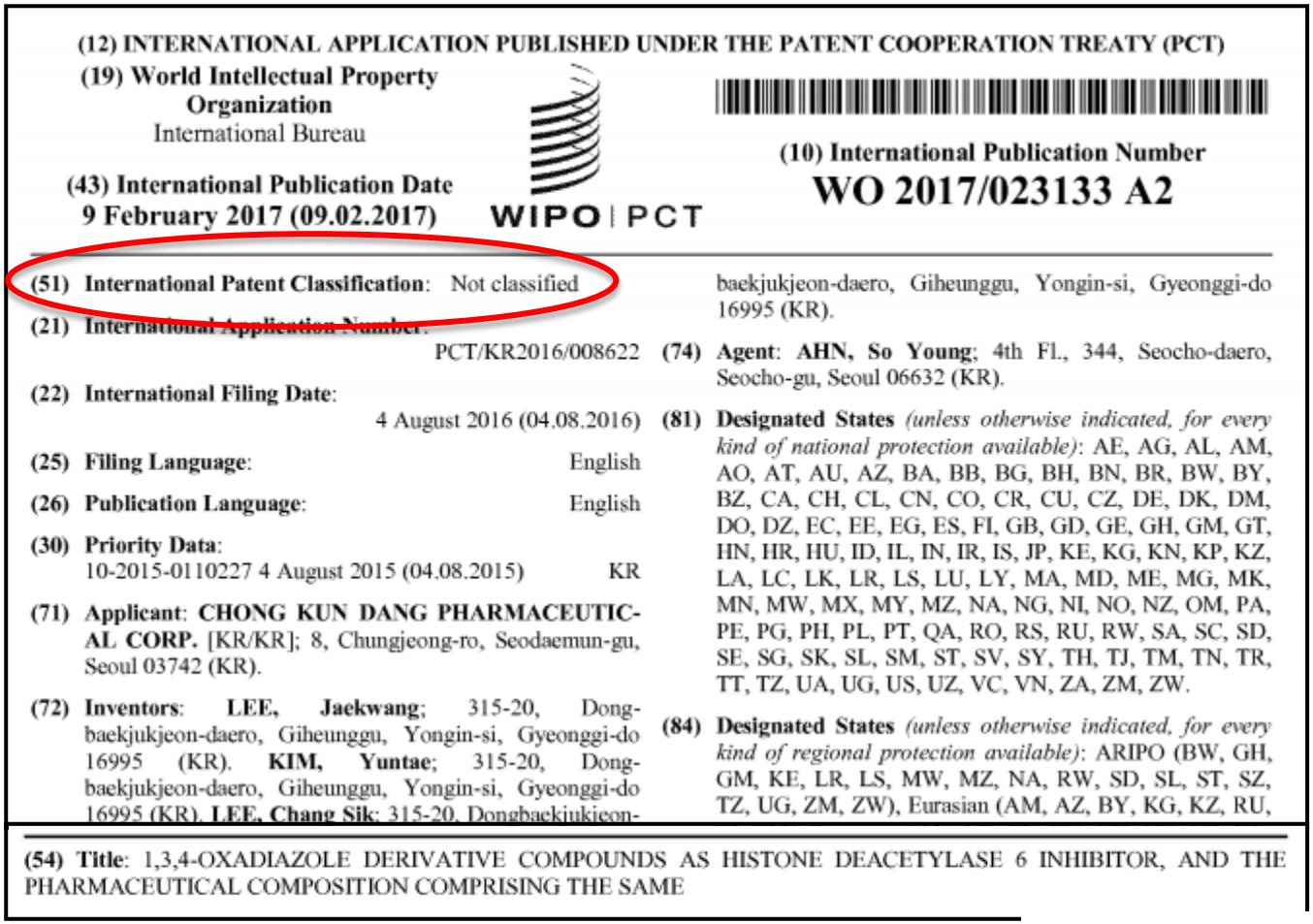
http://www.cas.org/content/references/patipcguar8

Patents with “selective coverage” IPC codes are intellectually evaluated for chemistry relevance

Class/ Subclass	Subject Matter	Groups Selectively Covered in CA
A: HUMAN NECESSITIES		
A01C	Planting, sowing and fertilizing	1/00-3/00, 14/00, 21/00
A01D	Harvesting; Mowing	69/12
A01G	Horticulture	all groups
A01H	New plants; plant reproduction by tissue culture	all groups
A01J	Manufacture of dairy products	00/00, 5/013, 7/02-7/04, 11/00, 15/00, 25/00, 25/11, 27/00-27/02, 99/00
A01K	Animal husbandry	1/015, 31/00, 43/00, 61/00, 61/10-61/51, 61/54, 61/57-61/59, 61/90-61/95, 67/00-67/033, 85/00-85/01, 91/00, 91/12, 91/18
A01L	Shoeing of animals	1/00, 5/00, 15/00
A01M	Catching or trapping of animals	1/00-1/02, 1/14-1/20, 3/04, 5/06, 29/12, 29/28, 99/00
A01N	Biocides, pesticides, herbicides, and plant growth regulators	00/00-25/34, 63/00-65/48
A01P	Biocidal, pesticidal, herbicidal, and plant growth regulating activity	all groups
A21B	Baking equipment	all groups
A21C	Dough processing equipment	all groups
A21D	Baking additives and preservatives	00/00-2/00, 2/34-17/00

Only those patents deemed to be chemistry relevant get value-added indexing.

Patents published without IPC classifications are also covered, but require special processing



(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
9 February 2017 (09.02.2017)

WIPO | PCT

(10) International Publication Number
WO 2017/023133 A2

(51) International Patent Classification: Not classified

(21) International Application Number:
PCT/KR2016/008622

(22) International Filing Date:
4 August 2016 (04.08.2016)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10-2015-0110227 4 August 2015 (04.08.2015) KR

(71) Applicant: **CHONG KUN DANG PHARMACEUTICAL CORP.** [KR/KR]; 8, Chungjeong-ro, Seodaemun-gu, Seoul 03742 (KR).

(72) Inventors: **LEE, Jaekwang**; 315-20, Dongbaekjukjeon-daero, Giheunggu, Yongin-si, Gyeonggi-do 16995 (KR). **KIM, Yuntae**; 315-20, Dongbaekjukjeon-daero, Giheunggu, Yongin-si, Gyeonggi-do 16995 (KR). **LEE, Chang Sik**; 315-20, Dongbaekjukjeon-daero, Giheunggu, Yongin-si, Gyeonggi-do 16995 (KR).

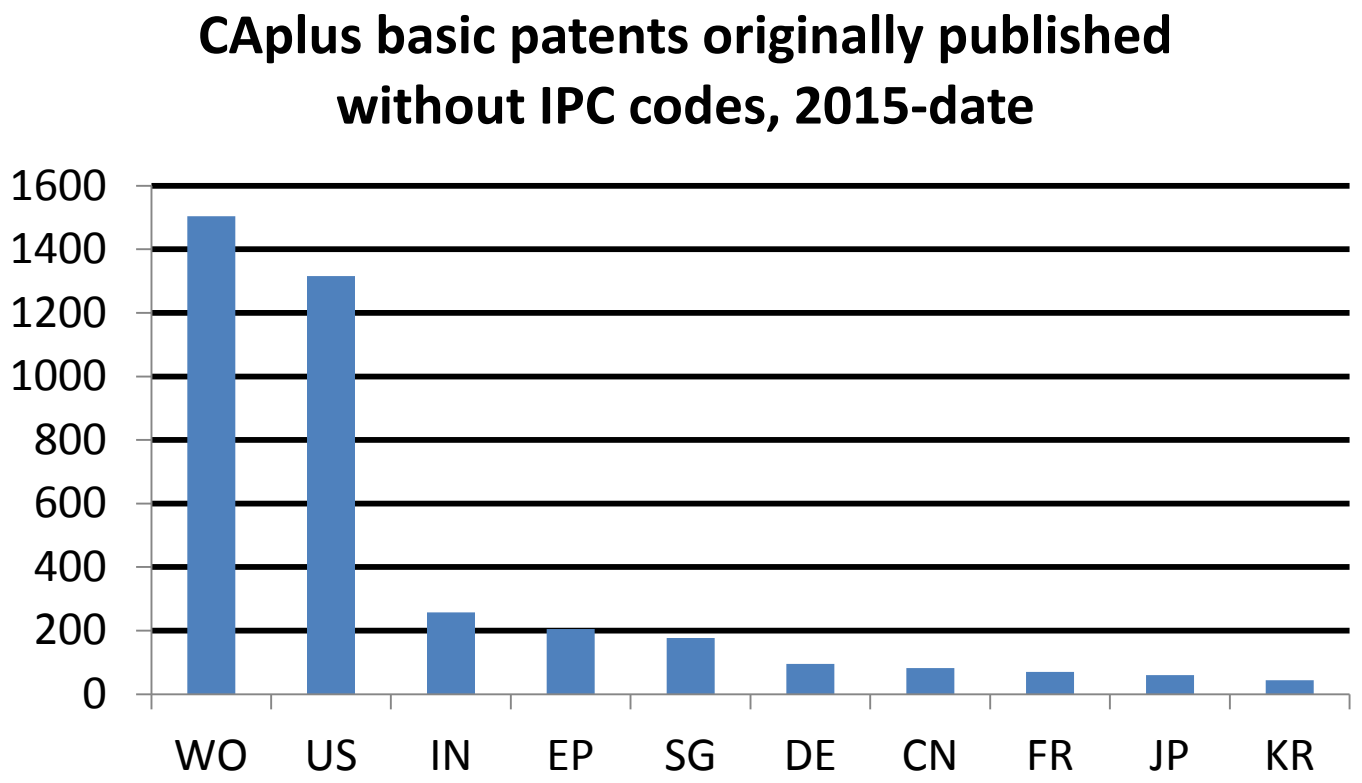
(74) Agent: **AHN, So Young**; 4th Fl., 344, Seocho-daero, Seocho-gu, Seoul 06632 (KR).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU,

(54) Title: 1,3,4-OXADIAZOLE DERIVATIVE COMPOUNDS AS HISTONE DEACETYLASE 6 INHIBITOR, AND THE PHARMACEUTICAL COMPOSITION COMPRISING THE SAME

Offices publishing patents without IPC codes in recent years



IPC codes are featured in STN's value-added and full-text patent databases

- Value-added databases
  - CAplus[SM], Derwent World Patents Index®, INPADOC
- Full-text patent databases
  - Australia, Canada, China, Europe, Germany, France, Great Britain, India, Japan, Korea, WIPO, United States
- INSPEC (engineering database)

IPCs are critically important for patent searching

- Search by IPC codes at various levels
  - Subclass A61K/IPC – retrieves all IPC codes which start with A61K
  - Group – A61K0031 – retrieves all IPC codes which start with A61K0031
  - Full Codes – A61K0031-473
- Search by initial IPC classification codes (IPCI), by latest reclassifications (IPCR), or at both levels (IPC)

The ability to search and display IPC metadata is also available

- Search by IPC metadata in IPC.KW (display in IPC.TAB)
  - Position: First (F) or Later (L)
  - Inventive (I) or Additional (A)
  - Assigning Authority – Two character abbreviation, such as AU, US or WO
  - Assignment – Human, Machine or Software (rare)
  - Status – Original (O) or Reclassification (R)

L12 ANSWER 1 OF 485960 CAPLUS COPYRIGHT 2017 ACS on STN

PI EP 3130335

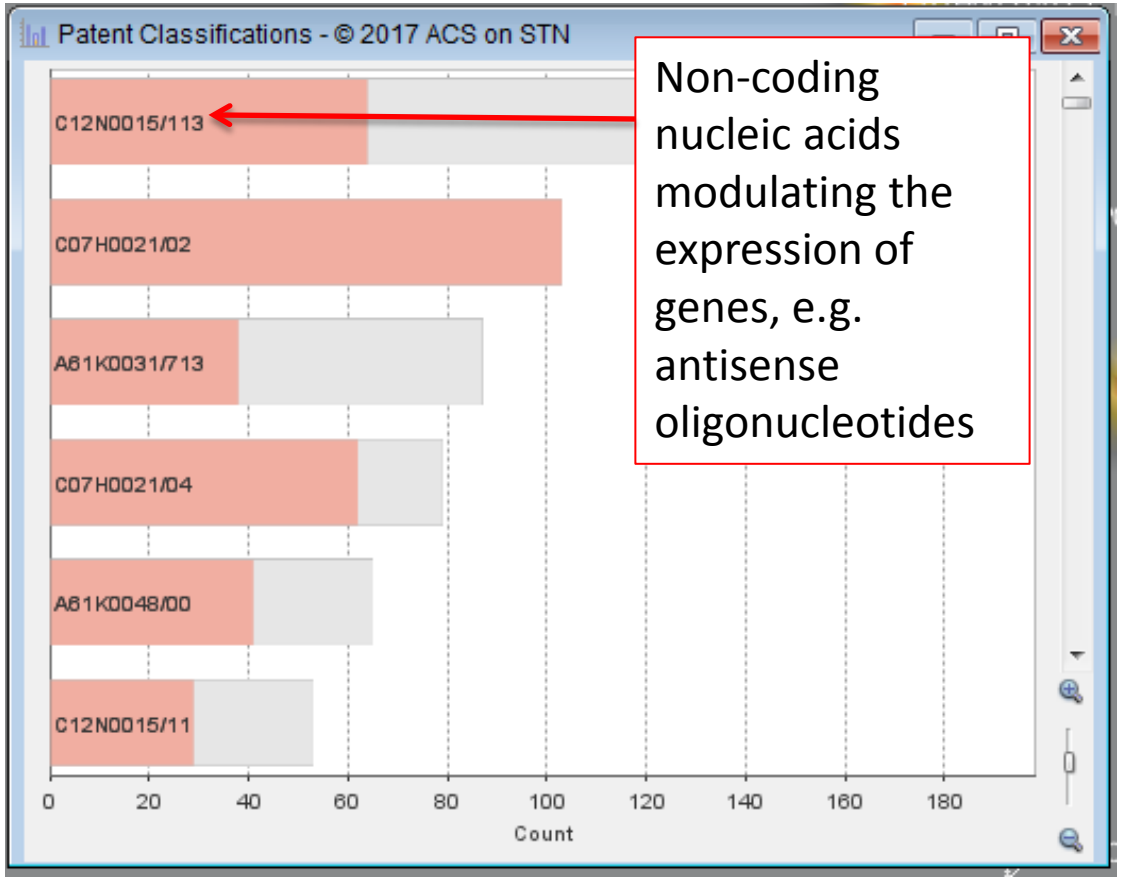
IPCI CODE	VERSION	POS	INV	CC	ASSIGNMENT	DATE	STAT
A61K0031-047	(200601)	F	I	EP	Human	20161205	O
A61K0031-717	(200601)	L	I	EP	Human	20161205	O
A61K0009-00	(200601)	L	I	EP	Human	20161205	O
A61K0009-20	(200601)	L	I	EP	Human	20161205	O
A61P0027-04	(200601)	L	I	EP	Human	20161205	O
A61P0027-10	(200601)	L	I	EP	Human	20161205	O

Users rely on the titles in the IPC thesaurus to find IPC codes for inclusion in their searches

```
=> e laser+kt/ipc
'LASER' NOT IN RELATIONSHIP FILE
RELATIONSHIP CODE IGNORED.
E#    FREQUENCY     AT      TERM
--    ---------     --      ----
E1            0      1      LARYNXES/IPC
E2            0      1      LARYNXES * ARTIFICIAL LARYNXES AS PROSTHESES/IPC
E3            0        --> LASER/IPC
E4            0      1      LASER(S)/IPC
E5            0      1      LASER(S) * LASER(S) THERAPY/IPC
E6            0      1      LASER(S) * SEVERING NON-METALLIC MATERIAL BY LASER(S)/
                            IPC
E7            0      1      LASTING/IPC
E8            0      1      LASTING * LASTING OF BOOTS OR SHOES/IPC
E9            0      1      LASTS/IPC
E10           0      1      LASTS * LASTS FOR BOOTS OR SHOES/IPC
E11           0      1      LASTS * MAKING WOODEN LASTS/IPC
E12           0      1      LASTS * MEASURING LASTS/IPC

=> e e4+all/ipc
E1            0    -->    LASER(S)/IPC
E2         1176    KT     A61N0005-067/IPC
E3        16596    KT     B23K0026-00/IPC
E4        82346    KT     H01S/IPC
********** END **********
```

IPC codes have great importance in competitive intelligence



Non-coding nucleic acids modulating the expression of genes, e.g. antisense oligonucleotides

Analysis of IPC codes of patents held by Alnylam Pharmaceuticals. Helps competitive intelligence professionals understand the company's IP portfolio.

Chart created using STN AnaVist™.

The STN version of the IPC thesaurus is updated quarterly

- Used in all relevant STN databases
- The first 2017 update has been delayed because of the unavailability of the catchword file since its expected October 2016 delivery date
    - Needed for definitions of new codes

Conclusions

- The IPC is a valuable resource for the patent community
- Organizes the various fields of technology
- Up-to-date and universally used
- Has database building applications
- Valued by searchers as an essential tool
- Also valued by business analysts and competitive intelligence professionals

Patent classification uses

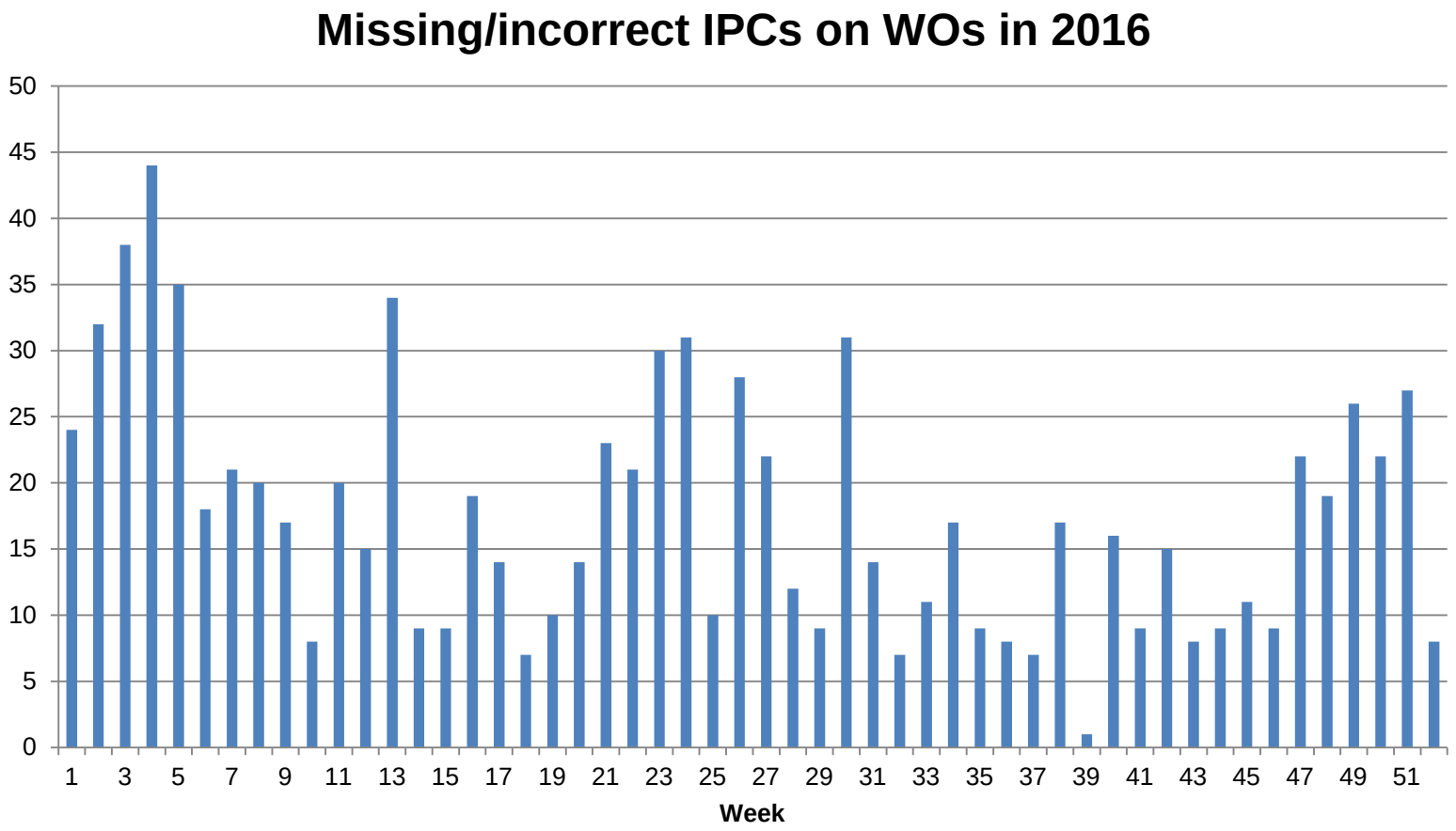
- Search tool:
  - Language independent : overcomes translation variations and terminology alternatives in emerging technologies, as well as spelling errors
  - Suitable for Technology drill down and concept retrieval

- Document routing tool:
  - In production and editorial departments patent documents are routed to technology experts
  - In product creation : for alerts and patent profiles
  - In Machine Translation developments where the classification is used to associate the correct technical dictionary with the respective technology

Classification challenges

- Classification features with limited user benefits
  - Inconsistency of classification attributes (e.g. generating office, position, source of classification etc)
  - Insufficient details related to certain classification features, linking codes
- Missing classification
- Invalid classification
- Availability at publication with the rest of bibliographic data

Missing/invalid IPCs in new publications loaded in DWPI



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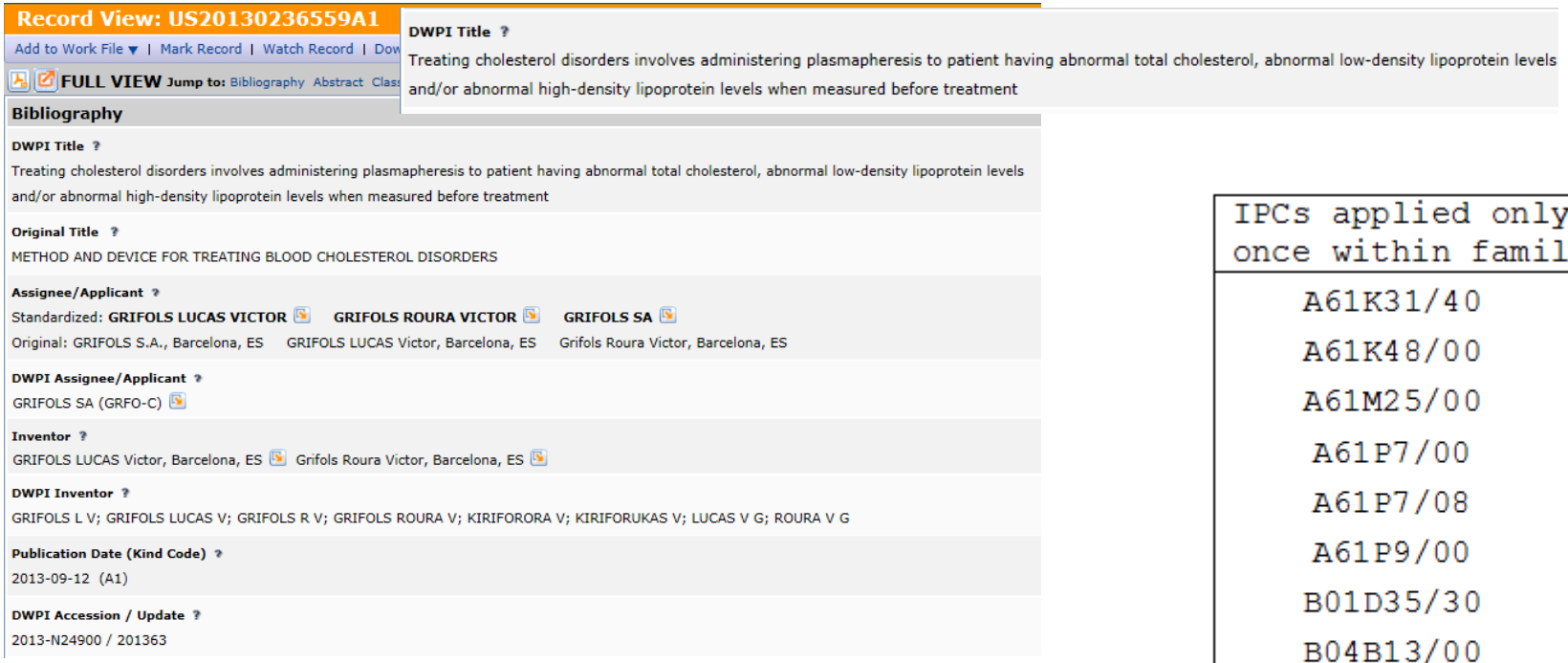
IPC – Same invention, different classification



Record View: US20130236559A1

Add to Work File ▼ | Mark Record | Watch Record | Dow

FULL VIEW Jump to: Bibliography Abstract Class

DWPI Title ?

Treating cholesterol disorders involves administering plasmapheresis to patient having abnormal total cholesterol, abnormal low-density lipoprotein levels and/or abnormal high-density lipoprotein levels when measured before treatment

Bibliography

DWPI Title ?

Treating cholesterol disorders involves administering plasmapheresis to patient having abnormal total cholesterol, abnormal low-density lipoprotein levels and/or abnormal high-density lipoprotein levels when measured before treatment

Original Title ?

METHOD AND DEVICE FOR TREATING BLOOD CHOLESTEROL DISORDERS

Assignee/Applicant ?

Standardized: **GRIFOLS LUCAS VICTOR** **GRIFOLS ROURA VICTOR** **GRIFOLS SA**

Original: GRIFOLS S.A., Barcelona, ES GRIFOLS LUCAS Victor, Barcelona, ES Grifols Roura Victor, Barcelona, ES

DWPI Assignee/Applicant ?

GRIFOLS SA (GRFO-C)

Inventor ?

GRIFOLS LUCAS Victor, Barcelona, ES Grifols Roura Victor, Barcelona, ES

DWPI Inventor ?

GRIFOLS L V; GRIFOLS LUCAS V; GRIFOLS R V; GRIFOLS ROURA V; KIRIFORORA V; KIRIFORUKAS V; LUCAS V G; ROURA V G

Publication Date (Kind Code) ?

2013-09-12 (A1)

DWPI Accession / Update ?

2013-N24900 / 201363

IPCs applied only once within family
A61K31/40
A61K48/00
A61M25/00
A61P7/00
A61P7/08
A61P9/00
B01D35/30
B04B13/00
G01N33/48
G01N33/50

Basic	Equivalents							
US20130236559	CA2809012	EP2638918	JP2013188475	AU2013201550	KR2013105452	MX2013002681	CN103301520	TW2013040973
A61K35/14 A61M25/00 A61P7/00 B01D35/30 B04B13/00	A61K35/14 A61M1/38 A61P3/06	A61K48/00	A61K31/40 A61K35/14 A61M1/34 A61P3/06	A61M1/38	A61K35/12 A61K35/14 A61P3/00 A61P9/00	G01N33/48 G01N33/50	A61M1/38	A61K35/14 A61M1/38 A61P3/06 A61P7/08
	ZA2013001815	SG193729	HK1185791	NZ 608133	IN2013DE00702	IL225129	RU2013110503	
	A61K		A61K	A61P3/06	A61K	A61K	A61M1/34	

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Role of patent family in classification

- The generating office attribute is important when the classification symbols are merged at invention level - some data users would like to use classification from certain offices when setting up alerts

- The classification could be extended to other members of the family and to overcome delay eg with reclassification

- Certain classification systems which are confined to certain collections, eg the Japanese classification, could be extended to data outside those collections

Challenge means opportunity

- Missing and invalid IPCs – value add by assigning front end classification
- Inconsistent classification
  - DWPI Manual coding
  - DWPI patent family
- Confusing Attributes – product enhancement features e.g. Inventive, non-inventive, generating office, version etc

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CPC – Threat or opportunity?
Conclusions

- Yet another classification system or chance for Integration in IPC or be the backbone for global classification?
- Granular, but how representative for technology developments in Japan, China, Korea?
- Applied to a large number of collections but not available at the time of patent document publication (except for US data)
- If more offices join in, how will the consistency of classification be maintained?
  - Role of the USPTO in consolidating the success of CPC
  - Role of WIPO in unifying the very best of the existing systems into a global classification, consistently applied by patent offices worldwide irrespective of their size

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IPC Quality Issues

- Invalid IPCs in the DOCDB backfile
- Missing IPCs of new patent publications

Invalid IPCs in DOCDB

C12N 5/00	**Undifferentiated human, animal or plant cells, e.g. cell lines; Tissues; Cultivation or maintena**
C12N 5/02	· Propagation of single cells or cells in suspension; Maintenance thereof; Culture media therefo
C12N 5/04	· Plant cells or tissues **[5]**
C12N 5/06	· Animal cells or tissues **[5]**
C12N 5/08	· Human cells or tissues **[5]**
C12N 5/10	· Cells modified by introduction of foreign genetic material, e.g. virus-transformed cells **[5]**
C12N 5/12	· · Fused cells, e.g. hybridomas **[5]**
C12N 5/14	· · · Plant cells **[5]**
C12N 5/16	· · · Animal cells **[5]**

IPC Revision 2010.01

C12N 5/00	**Undifferentiated human, animal or plant cells, e.g. cell lines; Tissues; Cultivation or maintenance**
C12N 5/02	· Propagation of single cells or cells in suspension; Maintenance thereof; Culture media therefor **[3]**
C12N 5/04	· Plant cells or tissues **[5]**
C12N 5/06	*(transferred to C12N 5/07)*
C12N 5/07	*· Animal cells or tissues **[2010.01]***
	Note(s)
	*The last place priority rule does not apply between the subgroups of this group. **[2010.01]***
C12N 5/071	*· · Vertebrate cells or tissues, e.g. human cells or tissues **[2010.01]***
C12N 5/073	*· · · Embryonic cells or tissues; Foetal cells or tissues **[2010.01]***
C12N 5/0735	*· · · · Embryonic stem cells; Embryonic germ cells **[2010.01]***
C12N 5/074	*· · · Adult stem cells **[2010.01]***
C12N 5/075	*· · · Oocytes; Oogonia **[2010.01]***
C12N 5/076	*· · · Sperm cells; Spermatogonia **[2010.01]***
C12N 5/077	*· · · Mesenchymal cells, e.g. bone cells, cartilage cells, marrow stromal cells, fat cells or muscle cells*
C12N 5/0775	*· · · · Mesenchymal stem cells; Adipose-tissue derived stem cells **[2010.01]***
C12N 5/078	*· · · Cells from blood or from the immune system **[2010.01]***
C12N 5/0781	*· · · · B cells; Progenitors thereof **[2010.01]***
C12N 5/0783	*· · · · T cells; NK cells; Progenitors of T or NK cells **[2010.01]***
C12N 5/0784	*· · · · Dendritic cells; Progenitors thereof **[2010.01]***
C12N 5/0786	*· · · · Monocytes; Macrophages **[2010.01]***
C12N 5/0787	*· · · · Granulocytes, e.g. basophils, eosinophils, neutrophils or mast cells **[2010.01]***
C12N 5/0789	*· · · · Stem cells; Multipotent progenitor cells **[2010.01]***
C12N 5/079	*· · · Neural cells **[2010.01]***
C12N 5/0793	*· · · · Neurons **[2010.01]***
C12N 5/0797	*· · · · Stem cells; Progenitor cells **[2010.01]***

The IPC subgroup *C12N 5/06* was transferred to *C12N 5/07* plus further subgroups with IPC version 2010.01

Invalid IPCs in DOCDB

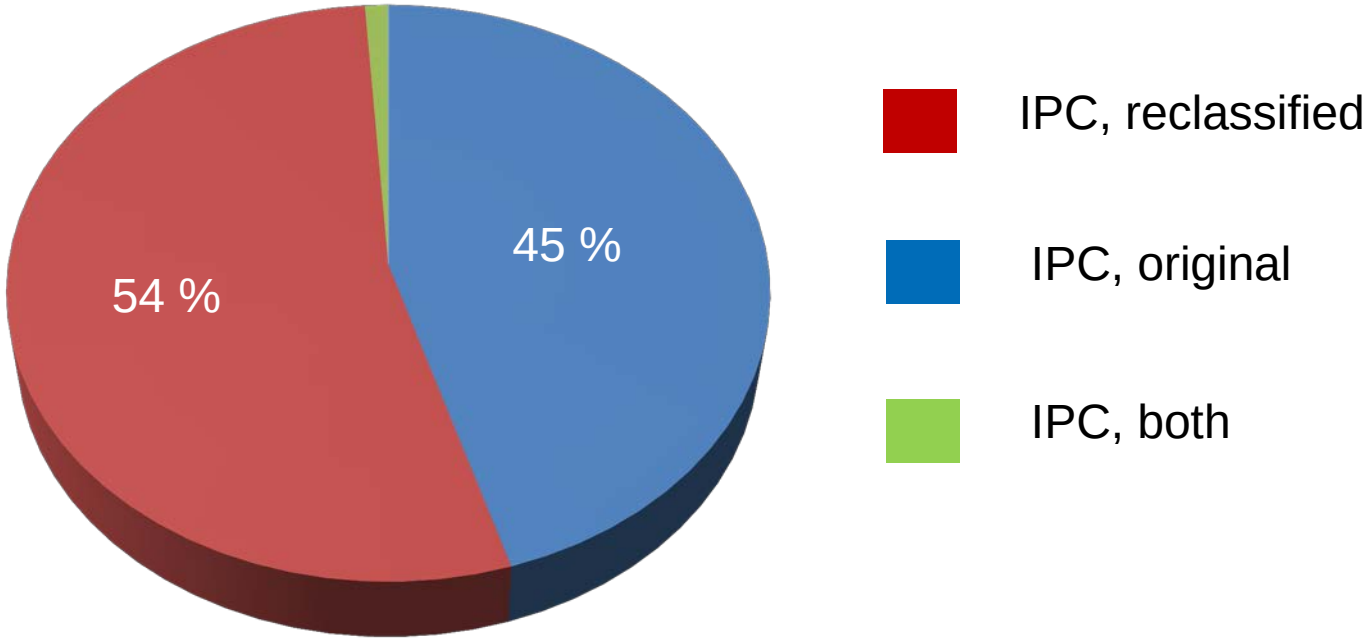
C12N 5/06 became invalid with IPC version 2010.01

23.459 records with C12N 5/06 IPC reform codes only*	
US	7.878
JP	2.235
WO	2.142
EP	2.093
AU	1.609
CA	1.397
DE	931
CN	508

* 24.111 records in INPADOCDB with C12N 5/06 (IPC8) of which 652 provide the revised code C12N 5/07 (plus further subgroups), search week 05/2017

Invalid IPCs in DOCDB

- 7.878 US applications with the old C12N 5/06 only



Invalid IPCs in DOCDB

No reclassification data available for C12N 5/06 originally assigned to US20070025992 A1

ACCESSION NUMBER: 75257776 INPADOCDB
TITLE: Monoclonal antibody against platelet membrane glycoprotein VI.
PATENT ASSIGNEE(S): MOCHIDA PHARMACEUTICAL CO., LTD
PATENT INFORMATION: **US 20070025992** **A1** 20070201 English
APPLICATION INFO.: US 2004-564745 A 20040720

IPC ORIGINAL (IPC8):

A61K0039-395 ; C07H0021-04 ; C07K0016-18 ; C12N0005-06 ; C12P0021-06

IPC RECLASSIF. (IPC8):

C07K0016-28 ; C12N0015-13 ; C12P0021-08

Invalid IPCs in DOCDB

Reclassification data of US20090317868 A1 cover the invalid code C12N 5/06

ACCESSION NUMBER: 60006452 INPADOCDB
TITLE: Rapidly Cleavable Sumo Fusion Protein Expression System for Difficult to Express Proteins.
PATENT ASSIGNEE(S): CORNELL UNIVERSITY
PATENT INFORMATION: **US 20090317868** **A1** 20091224 English
APPLICATION INFO.: US 2008-249334 A 20081010

IPC ORIGINAL (IPC8):

C12P0021-02; C12N0015-00

IPC RECLASSIF. (IPC8):

C12N0015-09; A61K0038-48; C07H0021-04; C07K0014-395; C07K0014-435; C07K0014-705; C07K0019-00; C12N0001-15; C12N0001-19; C12N0001-21; C12N0005-06; C12N0005-10; C12N0009-64; C12N0015-62; C12P0021-00; C12P0021-06

New Patent Publications without IPC*
in DOCDB from August 2016

1.762.403 new publications from August 2016	
IPC8	1.713.569
reclassified IPC, only	6.894**
no IPC	**41.940**

2,4 % of new publications have no IPC assigned

* new INPADOCDB records (new applications)
** KR (5411), TW (1176)

STN

New Patent Publications without IPC
in DOCDB from August 2016

publication type	no IPC code*	comments
design patents	30.186	**US S**, **JP S** , CA S, CL S1, etc.
gazette references	6.406	**GB D0**, AP D0
utility models	282	CN U, GB U1, PL U1, etc.
other	5.066	see next slide
total	**41.940**	

*number of new records in INPADOCDB without IPC

New Patent Publications without IPC
in DOCDB from August 2016

patent publication type	no IPC code*	total number of publications
CN A	1532 (0,3 %)	491.347
SG A	1191 (28 %)	4.294
PL T3	707 (21 %)	3.376
WO A1/A2	355 (0,3 %)	107.242
SM B	276 (99,6 %)	277
KR A	172 (0,3 %)	67.974

*number of new records in INPADOCDB without IPC

Conclusions

- IPC users need more transparency how the reclassifications are done to build reliable search strategies
- IPC revisions need a better transformation into first level data products like DOCDB
- WIPO should encourage smaller patent authorities to assign IPCs more extensively, e.g. SG, PL, SM