

# STN<sup>®</sup>

THE CHOICE OF PATENT EXPERTS<sup>™</sup>

The CPC as a Search Tool  
- Mind the Gap(s) -





## Agenda

- Introduction
- Coverage Issues
- Reclassification Issues
- Search Tips
- Conclusions

## Introduction: Cooperative Patent Classification (CPC)

- In-depth classification system developed and maintained by EPO and USPTO, launched in 2013
- IPC-based system with more than 260,000 codes, developed in sync with IPC
- CPC scheme is frequently revised and existing documents are reclassified accordingly
- Other patent offices started classifying in CPC (2/2017):  
AT, BR, CN, ES, FI, GB, GR, KR, MX, RU, SE

## The EPO also applies CPC to a subset of *The PCT Minimum Documentation*

Regional system	Begin Date	National Authority	Begin Date
EP	1978 (start)	CH	1920*
WO	1978 (start)	DE	1920*
AP	1984	DE-U	1985
OA	1966	FR	1902
		GB	1909
		US	1920*

(\* or earliest date)

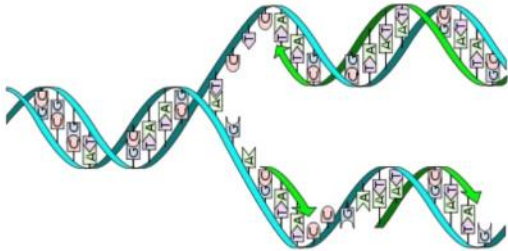
For historical reasons, coverage is also available for BE, NL and LU, and also partial coverage is available for AT, AU and CA.

## CPC is much more detailed than IPC

### C12N MICRO-ORGANISMS OR ENZYMES; COMPOSITIONS THEREOF

15/00 Mutation or genetic engineering; DNA or RNA concerning genetic engineering, vectors, e.g. plasmids, or their isolation, preparation or purification; Use of hosts therefor (mutants or

15/09 . Recombinant DNA-technology



**92** subdivisions in **IPC**

**185** subdivisions in **CPC**

## CPC scheme includes 2000 series codes to classify additional information (former ICO)

### A61K 39/00

**Medicinal preparations containing antigens or antibodies** (materials for immunoassay [G01N 33/53](#))

0000000

A61K 2039/505

. {comprising antibodies}

A61K 2039/507

.. {Comprising a combination of two or more separate antibodies}

A61K 2039/51

. {comprising whole cells, viruses or DNA/RNA}

A61K 2039/515

.. {Animal cells}

A61K 2039/5152

... {Tumor cells}

A61K 2039/5154

... {Antigen presenting cells [APCs], e.g. dendritic cells, macrophages}

A61K 2039/5156

... {expressing foreign proteins}

A61K 2039/5158

... {Antigen-pulsed cells e.g. T-cells}

A61K 2039/517

.. {Plant cells}

A61K 2039/52

.. {Bacterial cells; Fungal cells; Protozoal cells}

A61K 2039/521

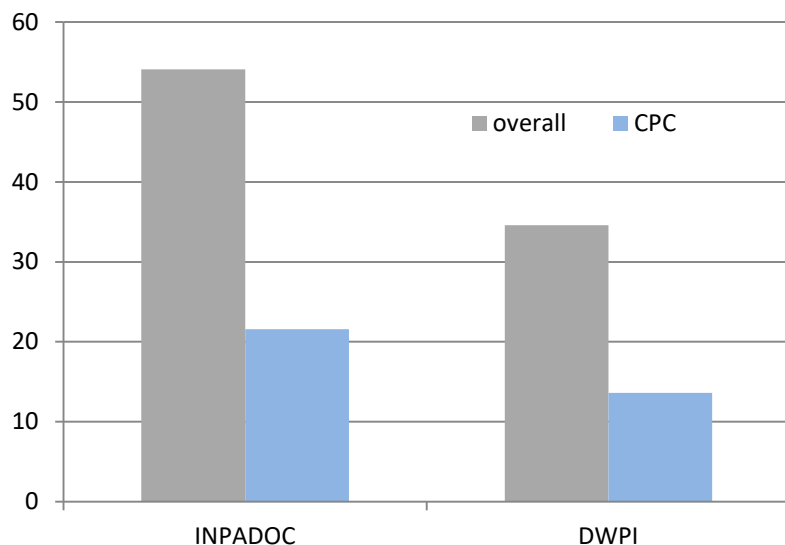
... {inactivated (killed)}

## Coverage Issues

- Overall Coverage
- CPC gaps in INPADOC
- CPC Coverage for major patent authorities
- Asia – Trend Analysis for published applications
- Timeliness

## Overall CPC Coverage in INPADOC and DWPI

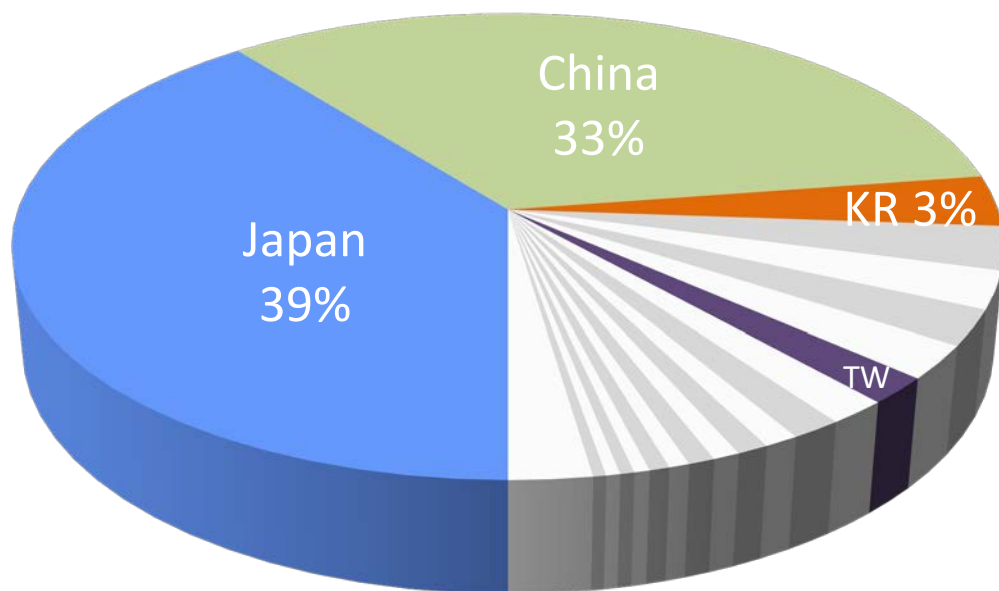
- 32 million INPADOC families of 54 – **no** CPC
- 21 million DWPI families of 34 – **no** CPC



Family-based  
CPC coverage is  
**40%**



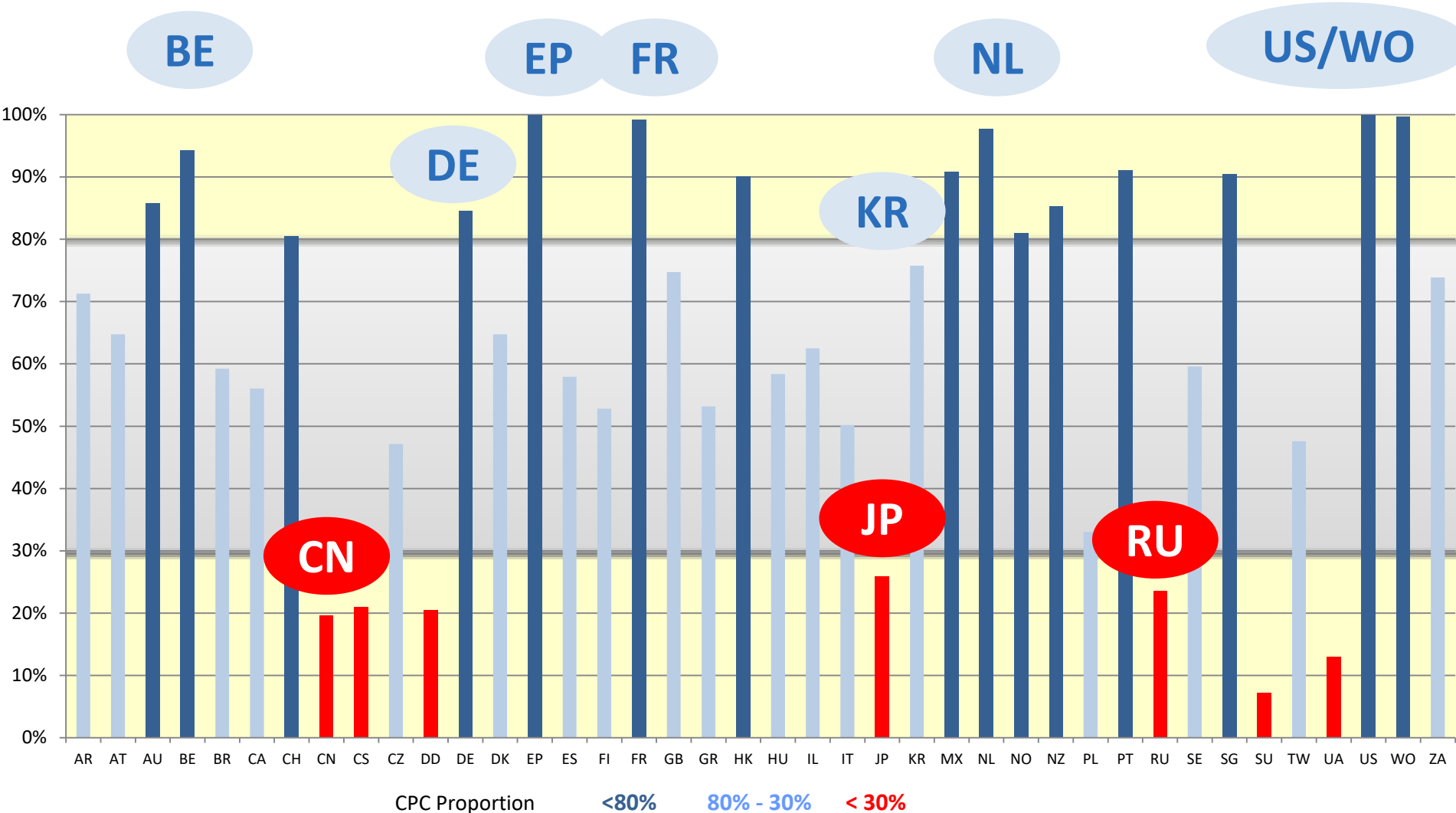
## Asia accounts for 24 million INPADOC Families with no CPC



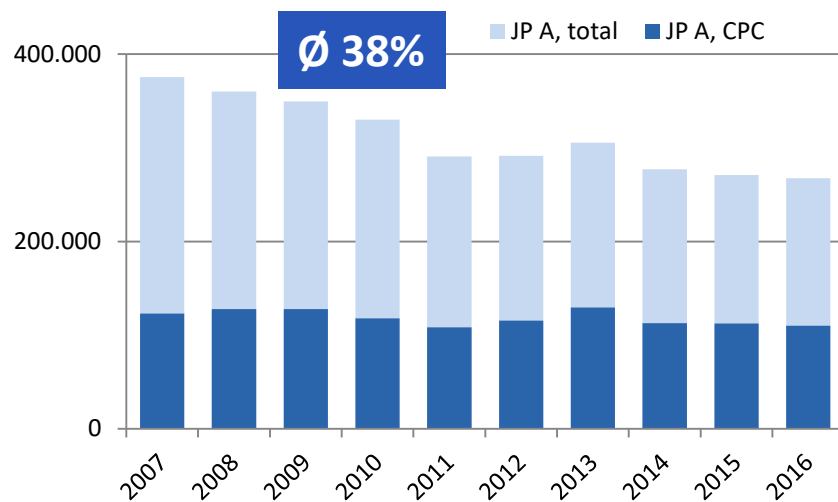
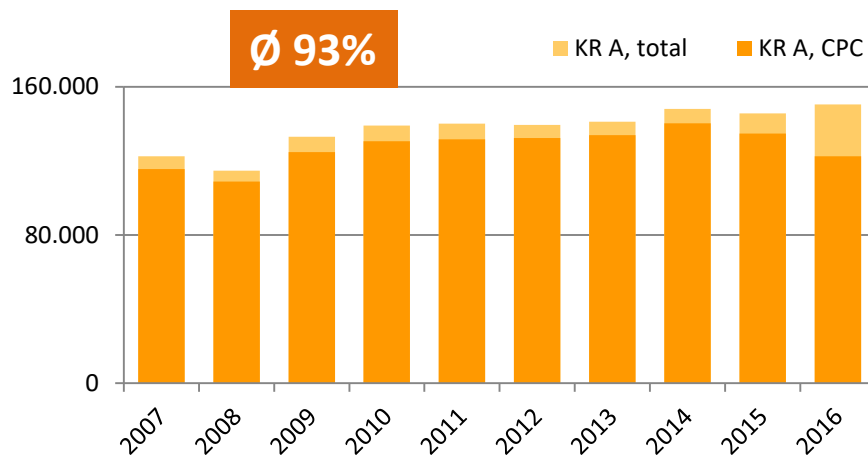
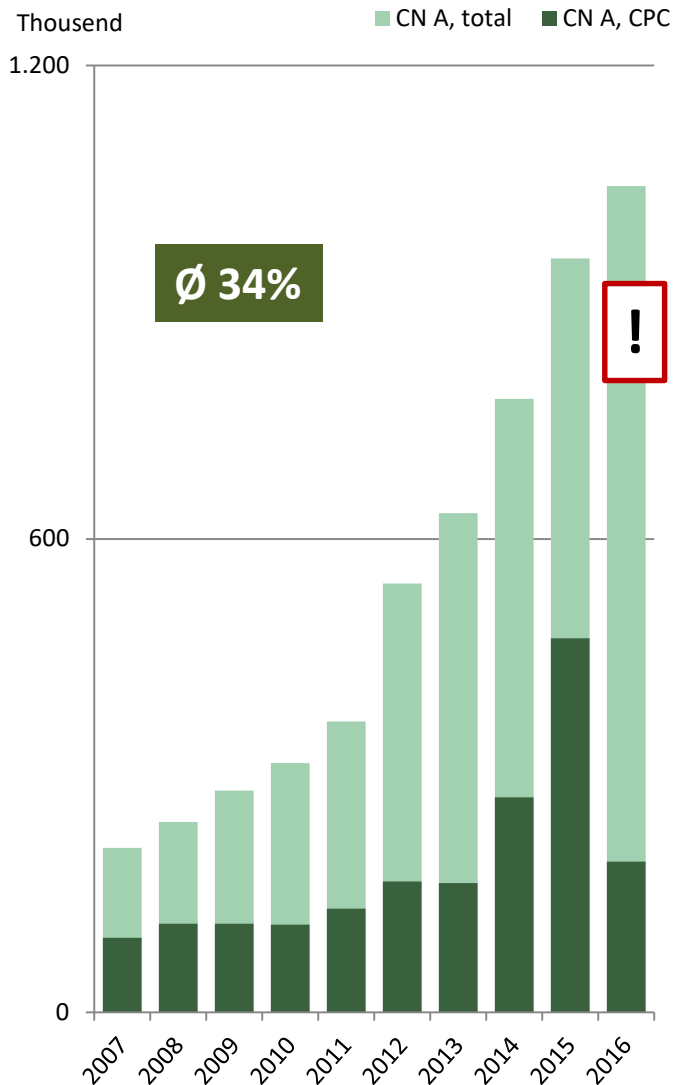
- 77% of all INPADOC families with no CPC have a member from CN/JP/KR/TW
- More than 95% of these families are based on a single application

*Patent country analysis of 32 million  
INPADOC families with no CPC*

# CPC Coverage (%) for 40 Major Patent Authorities



# Trend Analysis (2007-2016) of CPC coverage for published applications in China, Japan and Korea



## Timeliness for major Patent Authorities in INPADOC



EP	+++++	almost 100% upon entry in INPADOC
US	+++++	almost 100% upon entry in INPADOC
GB	++++	almost 100% upon entry in INPADOC for GBA, delays for gazette references GB D0
FR	++++	2 weeks for full coverage, 95% upon entry
WO	++	depends on PCT filing office: good timeliness for EP/FR/GB/DE poor timeliness for CN/JP/KR, delays for US
DE	++	40% upon entry, approx. 4 weeks for full coverage for DE A1 and DE U1
JP	+	about 40% upon entry = average value for 2016
KR	+	three month to reach 50%
CN	-----	<1% upon entry, takes 5 weeks to reach the average value of 2016 (14%)

## Revisions and Reclassifications

- Revision Frequencies
- Validity of codes
- Reclassification Issues

## CPC Revisions – Frequencies/Validity of Codes

- The CPC has seen **28** revisions since 2013

2013	2014	2015	2016	2017/02
4	8	9	5	2

- CPC scheme is dynamic and frequently revised
  - new codes enter the scheme
  - codes become invalid (transferred to other areas, abolished)
- New and invalid CPC codes\*
  - **13,367** codes are new (02/2017)
  - **4,038** codes became invalid (02/2017)

## Majority of new CPC Codes refers to subjects covered by former US-classification (Y10T)

Y10T*	9.759	Technical subjects covered by <b>former US-classification</b> ( <i>Jan. 2015 -</i> )
Y02P*	382	<b>Climate mitigation technologies</b> – production of goods ( <i>Nov. 2015 -</i> )
Y02W*	108	<b>Climate mitigation technologies</b> – waste water treatment ( <i>Jan. 2015 -</i> )
A61B	308	<b>Medical Science:</b> diagnosis, surgery ( <i>Feb. 2016 -</i> )
A63B	181	<b>Sports:</b> apparatus for physical training ( <i>Oct. 2015 -</i> )
C12Y	322	<b>Enzymes</b> ( <i>Jul. 2015 -</i> ), new
H04N	158	<b>Television</b> ( <i>Nov. 2014 -</i> )

\* new subclass

## CPC Subclasses with large numbers of invalid Codes (abolished/transferred)

A23L1	332	<b>Food</b> , preparation and treatment ( - Aug. 2016) completely removed and transferred to A23L/A23P
A61B	310	<b>Medical Science</b> : diagnosis, surgery ( - Jan. 2016), transferred within A61B
A61M	376	<b>Medical Science</b> : Devices for introducing media onto the body ( - Apr. 2014), abolished/transferred
A63B	206	<b>Sports</b> : apparatus for physical training ( - Oct. 2015) transferred within A63B
C12M	173	Apparatus for <b>Enzymology</b> or Microbiology ( - Sept. 2013), abolished
H02P	229	Control or regulation of <b>electric motors</b> ( - 2016), transferred within H02P
H04N	414	<b>Television</b> ( - Nov. 2014), abolished/transferred



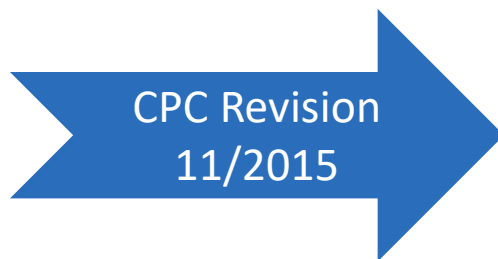
## Reclassifications

- EPO and USPTO reclassify the complete backfile with each revision of the CPC
- National offices applying CPC also reclassify according to the current version of the CPC
- Reclassification is an ongoing process and there are areas in the scheme for which reclassification is not complete

## Reclassification Issues (1) – existing patent documents in INPADOC with invalid CPC codes

*Methods for decoding video signals*

H04N7/50



H04N19/61

AN 54878882 INPADOCDB  
TI Methods and Systems for Detecting Pictorial Regions in Digital Images.  
PA SHARP LABORATORIES OF AMERICA, INC.  
PI **US 20070206857** **A1** 20070906  
PI **US 8630498** **B2** 20140114  
CPC **H04N0007-50**; G06K0009-00456; G06K0009-4647

## Reclassification Issues (2) – new patent documents published with invalid CPC codes

- A23L1 became invalid with CPC revision 08/2016
- US2017/0035814 was published with invalid A23L1 codes
- When US2017/0035814 was filed in December 2015, the A23L1 codes were still valid

AN 88922165 INPADOCDB  
TI NOVEL LACTIC ACID BACTERIUM AND USE THEREOF.  
PA National Taiwan University  
PI **US 20170035814**    **A1** 20170209  
AI US 2015-14976152    A 20151221  
CPC A61K0035-747; **A23L0001-293**; **A23L0001-3014**; A23V2002-00; A23Y2220-00;  
A61K0009-0053; A61K0045-06; C12N0001-20

## Search Tips

- Use value added classifications from DWPI and CAplus and other patent classification systems (FI, F-terms) for an international patent search and alerts
- Do not rely on the latest version of the CPC: use new and old codes from previous CPC versions
- Use CPC thesaurus functionality: +NT (2000 series)

## DWPI CPC and JPC search example (CPC=C12N0015-1003)

```
=> FILE WPINDEX
```

```
. . .
```

```
=> E C12N0015-1003+HIE/CPC
```

```
E1          0    BT7  C/CPC
              CHEMISTRY;METALLURGY(2013-01-01)

E2          0    BT6  C0/CPC
              CHEMISTRY(2013-01-01)

E3          0    BT5  C12/CPC
              BIOCHEMISTRY;BEER;SPIRITS;WINE;VINEGAR;MICROBIOLOGY;ENZYM
              OLOGY;MUTATION OR GENETIC ENGINEERING(2013-01-01)

E4          134767  BT4  C12N/CPC
              MICRO-ORGANISMS OR ENZYMES;COMPOSITIONS THEREOF
              reference: biocides, pest repellants or attractants, or
              plant growth regulators, containing micro-organisms,
              viruses, microbial fungi, enzymes,

E5          1197  BT3  C12N0015-00/CPC
              Mutation or genetic engineering;DNA or RNA concerning
              genetic engineering, vectors, e.g. plasmids, or their
              isolation, preparation or purification;Use of hosts
              therefor reference: mutants or

E6          807  BT2  C12N0015-09/CPC
              Recombinant DNA-technology(2013-01-01)
```

## DWPI CPC and JPC search example (cont.)

```
E7          1399    BT1  C12N0015-10/CPC
          Processes for the isolation, preparation or purification
          of DNA or RNA reference: chemical preparation of DNA or
          RNA C07H0021-00; preparation of non-structural
          polynucleotides from micro-organisms

E8          956    --> C12N0015-1003/CPC
          CPC-specific-text: Extracting or separating nucleic
          acids from biological samples, e.g. pure separation or
          isolation methods; Conditions, buffers or apparatuses
          therefor(2013-01-01)

E9          709    NT1  C12N0015-1006/CPC
          CPC-specific-text: by means of a solid support carrier,
          e.g. particles, polymers(2013-01-01)

E10         398    NT2  C12N0015-101/CPC
          CPC-specific-text: by chromatography, e.g.
          electrophoresis, ion-exchange, reverse phase(2013-01-01)

E11         378    NT2  C12N0015-1013/CPC
          CPC-specific-text: by using magnetic beads(2013-01-01)

E12         317    NT1  C12N0015-1017/CPC
          CPC-specific-text: by filtration, e.g. using filters,
          frits, membranes(2013-01-01)

***** END *****
```

## ANALYZE L1 set to find relevant JPC codes

```
=> S C12N0015-1003+NT/CPC
```

```
L1          2320 C12N0015-1003+NT/CPC  (5 TERMS)
```

```
=> ANALYZE L1 JPC 1-
```

```
L2          ANALYZE L1 1- JPC :      623 TERMS
```

```
=> D
```

```
L2          ANALYZE L1 1- JPC :      623 TERMS
```

TERM #	# OCC	# DOC	% DOC	JPC
1	1038	645	27.80	C12N0015-00
2	486	315	13.58	C12Q0001-68
3	342	70	3.02	G01N0030-88
4	321	226	9.74	C12M0001-00
5	116	91	3.92	C07H0021-04
6	94	52	2.24	G01N0033-53
7	84	56	2.41	G01N0037-00
8	77	29	1.25	G01N0027-26
9	76	54	2.33	C12P0019-34
10	76	31	1.34	G01N0030-48

## JPC C12N0015-00 plus all BTs and NTs

=> E C12N0015-00+ALL/JPC

E1	0	BT3	C/JPC
		DEF	SECTION C - CHEMISTRY; METALLURGY
E2	0	BT2	C12/JPC
		DEF	BIOCHEMISTRY; BEER; SPIRITS; WINE; VINEGAR; MICROBIOLOGY; ENZYMOLOGY; MUTATION OR GENETIC ENGINEERING
E3	113794	BT1	C12N/JPC
		DEF	MICRO-ORGANISMS OR ENZYMES; COMPOSITIONS THEREOF (biocides, pest repellants or attractants, or plant growth regulators containing micro-organisms, viruses, microbial fungi, enzymes, fermentates, or
E4	74391	-->	C12N0015-00/JPC
		DEF	Mutation or genetic engineering (processes for producing plant mutations A 01 H 1/06) (3)
E5	68007	NT1	C12N0015-00 A/JPC
		DEF	Genetic engineering (including genetic modification)
E6	541	NT2	C12N0015-00 B/JPC
		DEF	. Cell fusion
E7	4341	NT3	C12N0015-00 C/JPC
		DEF	. . Related to monoclonal antibody
E8	66	NT3	C12N0015-00 D/JPC
		DEF	. . Related to lymphokines



## JPC C12N0015-00 plus all BTs and NTs (cont.)

E9	3547	NT2	C12N0015-00 F/JPC
		DEF	. DNA chip or microarray
E10	2298	NT2	C12N0015-00 G/JPC
		DEF	. Non-coding nucleic acids modulating the expression of genes, e.g. antisense oligonucleotides
E11	449	NT2	C12N0015-00 H/JPC
		DEF	. Aptamers, i.e. nucleic acids binding a target molecule specifically and with high affinity without hybridising therewith
E12	146	NT2	C12N0015-00 J/JPC
		DEF	. Nucleic acids having immunomodulatory properties, e.g. containing CpG-motifs
E13	86	NT2	C12N0015-00 K/JPC
		DEF	. Techniques for producing new embryos, e.g. nuclear transfer, manipulation of totipotent cells or production of chimeric embryos
E14	66	NT3	C12N0015-00 L/JPC
		DEF	. . Techniques for producing new mammalian cloned embryos
E15	440	NT1	C12N0015-00 X/JPC
		DEF	Mutation
E16	522	NT1	C12N0015-00 Z/JPC
		DEF	Others

\*\*\*\*\* END \*\*\*\*\*

## Add Keyword Search to improve search retrieval

```
=> S E4+NT NOT L1
```

```
74391 C12N0015-00+NT/JPC (13 TERMS)
```

```
L3 73746 C12N0015-00+NT/JPC NOT L1
```

```
=> S L3 AND (EXTRACT? OR SEPARAT? OR ISOLAT?)/BI,BIEX
```

```
1061973 EXTRACT?/BI
```

```
1504 EXT/BI
```

```
98 EXTS/BI
```

```
1559 EXT/BI
```

```
((EXT OR EXTS)/BI)
```

```
5976 EXTD/BI
```

```
633 EXTG/BI
```

```
28447 EXTN/BI
```

```
125 EXTNS/BI
```

```
28489 EXTN/BI
```

```
((EXTN OR EXTNS)/BI)
```

```
. . .
```

```
L4 39983 L3 AND (EXTRACT? OR SEPARAT? OR ISOLAT?)/BI,BIEX
```

## Turn Abbreviations Off to “improve” results

```
=> SET ABBREV OFF
```

```
SET COMMAND COMPLETED
```

```
=> S L3 AND (EXTRACT? OR SEPARAT? OR ISOLAT?)/BI,BIEX
```

```
1061973 EXTRACT?/BI
```

```
975606 EXTRACT?/BIEX
```

```
2201690 SEPARAT?/BI
```

```
2688061 SEPARAT?/BIEX
```

```
545943 ISOLAT?/BI
```

```
667312 ISOLAT?/BIEX
```

```
L5 39479 L3 AND (EXTRACT? OR SEPARAT? OR ISOLAT?)/BI,BIEX
```

## Review results

=> D KWIC 1-3

L5 ANSWER 1 OF 39479 WPINDEX COPYRIGHT 2017 CLARIVATE ANALYTICS on STN  
FCL A61K0036-28 (ZNA); A61K0125:00; A61K0036-539; A61K0008-97; A61P0017-00;  
A61P0019-10; A61P0037-08; A61P0043-00 111; A61Q0019-00; C12N0015-00 A;  
C12Q0001-02; C12Q0001-66; C12Q0001-68 A; C12Q0001-68 Z

L5 ANSWER 2 OF 39479 WPINDEX COPYRIGHT 2017 CLARIVATE ANALYTICS on STN  
FCL C12Q0001-68 (ZNA); C12N0015-00 A; C12Q0001-02; G01N0033-15 Z;  
G01N0033-50 Z; G01N0033-53 D; G01N0033-53 M

Member . . .

which show the grade of shrinkage|contraction of the collagen gel which  
carried out the three-dimensional cell culture of the fibroblast  
**isolated** from the periodontitis patient or the able-bodied|healthy  
person. The correlation plot of a fibroblast with various FIG. 2A and FIG.  
2B. . .

## Review results (cont.)

L5 ANSWER 3 OF 39479 WPINDEX COPYRIGHT 2017 CLARIVATE ANALYTICS on STN  
TI Storing DNA test substance and identifying individuals, by sampling oral  
mucous membrane cell, performing DNA **extraction**, amplifying obtained  
DNA, and comparing DNA sequence obtained by amplification process  
TT TT: STORAGE DNA TEST SUBSTANCE IDENTIFY INDIVIDUAL SAMPLE ORAL MUCOUS  
MEMBRANE CELL PERFORMANCE **EXTRACT** AMPLIFY OBTAIN COMPARE SEQUENCE  
PROCESS  
FCL **C12N0015-00 A**; C12Q0001-68 Z; G01N0033-53 M  
NOV . . . producer and manufacturer of product, removing details of oral  
mucous membrane cell, storing the oral mucous membrane cell, performing  
DNA **extraction**, performing amplification to determine foreign material  
when a bio-derived foreign material is discovered from a product,  
performing DNA **extraction** from oral mucous membrane and amplifying  
obtained DNA, and comparing DNA sequence obtained by amplification  
process.

Member(0001)

ABEQ JP 2016158614 . . . producer and manufacturer of product, removing  
details of oral mucous membrane cell, storing the oral mucous membrane  
cell, performing DNA **extraction**, performing amplification to determine  
foreign material when a bio-derived foreign material is discovered from a  
product, performing DNA **extraction** from oral mucous membrane and . . .

## Search conderations

- This strategy only covered patent families with JP docs, use IPCs and-or Derwent Manual Codes on other patent families with no CPC classes
- Consider revising keyword strategy to refine retrieval
  - (nW) or (nA) proximity operators
  - Additional concepts
- Consider other limiters
  - Date range, inventor(s)/assignee(s), etc.

## How to identify old CPC codes, e.g. for H04N19/10

- **CPC validity file** helps to check when a code entered the scheme or became invalid

<i>CPC code</i>	<i>valid from</i>	<i>valid to</i>
.....		
H04N19/00987	2013-01-01	2014-11-01
H04N19/00993		
H04N19/10		
H04N19/102		
H04N19/103		
.....		

Go to CPC notice of changes 2014/11:

3. REVISION CONCORDANCE LIST (RCL)

<u>Type*</u>	<u>From CPC Symbol (existing)</u>	<u>To CPC Symbol (new)</u>
D	H04N7/26	H04N19/00
D	H04N7/26005	H04N19/10
D	H04N7/2601	H04N19/102
D	H04N7/26015	H04N19/105
D	H04N7/26021	H04N19/103
D	H04N7/26026	H04N19/11
D	H04N7/26031	H04N19/107
D	H04N7/26037	H04N19/109
D	H04N7/26042	H04N19/112

RP0046 (C07K)  
RP0062 (H04N)  
RP0079 (B63B)

- **CPC notice of changes** list to check for **H04N7/26005**

dance

**CPC validity file** <http://www.cooperativepatentclassification.org/cpcSchemeAndDefinitions/Bulk.html>

**CPC notice of changes** <http://www.cooperativepatentclassification.org/CPCRevisions/NoticeOfChanges.html>

## Search Tip: Use the CPC thesaurus functionality +NT to include the 2000 series CPC codes

=> FILE INPAFAMDB

Searching main group codes with +NT (narrower terms) is now more comprehensive than before

=> S A61K0039-00+NT/CPC

L1 29502 A61K0039-00+NT/CPC (177 TERMS)

=> S A61K0039/CPC

L2 22655 A61K0039/CPC

=> S L1 NOT L2

L3 6847 L1 NOT L2

=> D TI PA PI CPC

L3 ANSWER 1 OF 6847 INPAFAMDB COPYRIGHT 2014 EPO/FIZ KA on STN

TI COMPOSITIONS AND METHODS FOR DIAGNOSIS AND TREATMENT OF HEPATIC ...

- COMPOSITIONS ET METHODES POUR LE DIAGNOSTIC ET LE TRAITEMENT DE ...

PA GENENTECH, INC.

- F. HOFFMANN-LA ROCHE AG

PI WO 2014151866 A1 20140925

CPC C07K0016-28; **A61K2039-505**; C07K0016-2896; C07K2317-33; C07K2317-55;  
C07K2317-565; C07K2317-567; C07K2317-75; C07K2317-76



## Conclusions

- CPC is a high precision search tool
- Be aware of coverage gaps and timeliness issues for an international patent search
- Current version of the CPC is not sufficient, use old and new codes in your strategy
- Check new versions of the CPC for new codes and update your search strategies
- Use CPC thesaurus functionality to include 2000 series codes

## References

- CPC website from EPO and USPTO  
<http://www.cooperativepatentclassification.org/>



## For more information ...

CAS

[help@cas.org](mailto:help@cas.org)

Support and Training:

[www.cas.org](http://www.cas.org)

FIZ Karlsruhe

[helpdesk@fiz-karlsruhe.de](mailto:helpdesk@fiz-karlsruhe.de)

Support and Training:

[www.stn-international.de](http://www.stn-international.de)