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LESSONS LEARNED FROM THE ON-THE-JOB TRAINING IN SEQUENCE SEARCH AT THE SWISS PATENT OFFICE

Training Program

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Swiss Federal Institute of Intellectual Property (IPI)

(16-20 April 2018)

Funds-in-Trust Australia 2017-2018

Cooperation on Examination and Training Section, PCT
International Cooperation Division, WIPO

Objectives

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Develop competencies of the trainees for examining inventions involving protein and genetic sequences

- Search for sequences using various public and commercial databases
- Deal with technology-specific issues related to claim wording, or novelty and obviousness
- Identify the source of the genetic material

Expected outcomes

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Develop competencies of the trainees for examining inventions involving protein and genetic sequences

- Increase proficiency in using commercial and public databases
- Accurately evaluate search requirements of any given claim so as to decide which type of prior arts to search for
- Learn efficient search techniques and best practices that ensures thorough search
- Assess novelty and inventiveness of sequence claims using the search products obtained

Pre-Training

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Gather sample cases

Training Method

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For each case:

Databases used

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Commercial

- SequenceBase (USGENE, WOGENE, GENESEQ)
- GenomeQuest
  - DNA, RNA & protein sequence search
- PatBase
- STNext
  - Full-text patent search

Open-access

- NCBI BLAST
  - Comparing sequences and calculating homology
- ENSEMBLE
  - Gene search and computing multiple alignments

Databases used

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• Registry	• Full-text search; search for sequences containing uncommon amino acids and metal complexes	• Commercial
• GQ-PAT (Collection)	• Sequence search results include patent information as well as biological information	• Commercial
• PatSeq Finder	• sequence similarity search tool	• Open-access
• GeneCards	• Human gene sequence search tool that includes genomic, transcriptomic, proteomic, genetic, clinical and functional information	• Open-access
• UniProt	• Protein sequences search which also gives the functional information	• Open-access
• iHOP	• Searching literatures containing the specific gene name or the accession number	• Open-access
• EBI	• Nucleotide sequence search, including assembly and functional information	• Open-access
• NCBI OMIM	• Human gene search, with phenotype information and genetic disorders	• Open-access
• NCBI MeSH	• Finding alternate words or synonyms for diseases and other life science-related terms	• Open-access
• NCBI Pubmed	• Medical terminology search	• Open-access

Databases used

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• Genesys	• Plant genetic resources search	• Open-access
• INN	•Identification of pharmaceutical substances or active pharmaceutical ingredients (database of generic names)	• Open-access
• FDA	• General information on drugs and other life science-related queries	• Open-access
• Clinical Trial	• Searching drugs and their clinical trial stage, registration status and summary results	• Open-access
• Google Scholar	• General search on academic literature	• Open-access
• Wikipedia	• General/ background information search	• Open-access

Outcomes

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- Wider understanding with regard the analysis and search of each case
- Optimized use of the databases and online platforms for sequence search
- “Manipulate” the features of each database to effect an inter-platform search
- Various online platforms are introduced for auxiliary search

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IPOPHL's Best Practices for Searching Inventions Related to Sequences

Search Method

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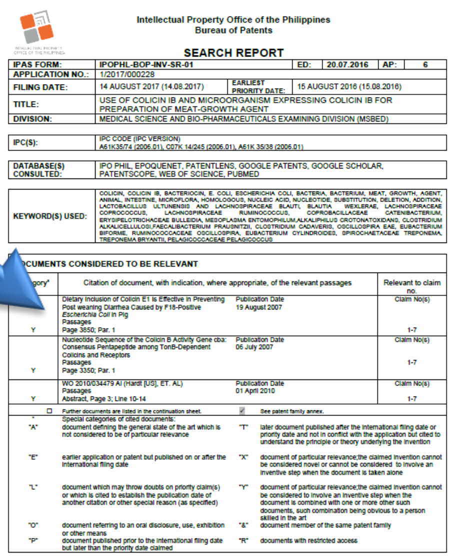
Claims analysis → Identification of the inventive concept → **Prior art search involving gene/protein sequences** → Evaluation of claims against the chosen prior arts → Search report



Intellectual Property Office of the Philippines
Bureau of Patents

SEARCH REPORT

IPAS FORM:	**IPOPHL-BOP-INV-SR-01**	**ED:**	**20.07.2016**	**AP:**	**6**
APPLICATION NO.:	1/2017/000228				
FILING DATE:	14 AUGUST 2017 (14.08.2017)	**EARLIEST PRIORITY DATE:**	15 AUGUST 2016 (15.08.2016)		
TITLE:	USE OF COLICIN IB AND MICROORGANISM EXPRESSING COLICIN IB FOR PREPARATION OF MEAT-GROWTH AGENT				
DIVISION:	MEDICAL SCIENCE AND BIO-PHARMACEUTICALS EXAMINING DIVISION (MSBED)				

IPC(S):	IPC CODE (IPC VERSION) A61K35/74 (2006.01), C07K 14/245 (2006.01), A61K 35/38 (2006.01)

DATABASE(S) CONSULTED:	IPO PHIL, EPOQUENET, PATENTLENS, GOOGLE PATENTS, GOOGLE SCHOLAR, PATENTSCOPE, WEB OF SCIENCE, PUBMED

KEYWORD(S) USED:	COLICIN, COLICIN IB, BACTERIOCIN, E. COLI, ESCHERICHIA COLI, BACTERIA, BACTERIUM, MEAT, GROWTH, AGENT, ANIMAL, INTESTINE, MICROFLORA, HOMOLOGOUS, NUCLEIC ACID, NUCLEOTIDE, SUBSTITUTION, DELETION, ADDITION, LACTOBACILLUS ULTUNENSIS AND LACHNOSPIRACEAE BLAUTI, BLAUTIA WEXLERAE, LACHNOSPIRACEAE COPROCOCCUS, LACHNOSPIRACEAE RUMINOCOCCUS, COPROBACILLACEAE CATENIBACTERIUM, ERYSIPELOTRICHACEAE BULLEIDIA, MESOPLASMA ENTOMOPHILUM,ALKALIPHILUS CROTONATOXIDANS, CLOSTRIDIUM ALKALICELLULOSI,FAECALIBACTERIUM PRAUSNITZII, CLOSTRIDIUM CADAVERIS, OSCILLOSPIRA EAE, EUBACTERIUM BIFORME, RUMINOCOCCACEAE OSCILLOSPIRA, EUBACTERIUM CYLINDROIDES, SPIROCHAETACEAE TREPONEMA, TREPONEMA BRYANTII, PELAGICOCCACEAE PELAGICOCCUS

…CUMENTS CONSIDERED TO BE RELEVANT

…gory*	Citation of document, with indication, where appropriate, of the relevant passages		Relevant to claim no.
Y	Dietary Inclusion of Colicin E1 is Effective in Preventing Post weaning Diarrhea Caused by F18-Positive *Escherichia Coli* in Pig Passages Page 3850; Par. 1	Publication Date 19 August 2007	Claim No(s) 1-7
Y	Nucleotide Sequence of the Colicin B Activity Gene cba: Consensus Pentapeptide among TonB-Dependent Colicins and Receptors Passages Page 3350; Par. 1	Publication Date 06 July 2007	Claim No(s) 1-7
Y	WO 2010/034479 AI (Hardt [US], ET. AL) Passages Abstract, Page 3; Line 10-14	Publication Date 01 April 2010	Claim No(s) 1-7

☐ Further documents are listed in the continuation sheet. ☑ See patent family annex.

* Special categories of cited documents:

"A"	document defining the general state of the art which is not considered to be of particular relevance	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E"	earlier application or patent but published on or after the international filing date	"X"	document of particular relevance;the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance;the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O"	document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family
"P"	document published prior to the international filing date but later than the priority date claimed	"R"	documents with restricted access

Search Method/Databases used

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- Keyword search
  - Google, Google Patents, Google Scholar

3-person search team

- Full-text search
  - EpoqueNet, Web of Science
  - Open-access patent databases
- Sequence search
  - STN, PatSeq, BLAST
- IPAS
- International work products

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THANK YOU