Sequence Search on STN

- IPOPHL sample cases -

May 21, 2019

Eunyoung Kim

Patent Examiner / Ph.D.

Biotechnology Examination Division

Korean Intellectual Property Office

Case 1

CLAIMS

1. An oligonucleotide having the nucleotide sequence SEQ NO. 1 - 5' - CACCAGGGGTCTGGAATATGT - 3'.

2. An oligonucleotide having the nucleotide sequence SEQ NO. 2 - 5' - AGCTCCAGCTTCAATTTGCTCT - 3'.

3. An oligonucleotide having the nucleotide sequence SEQ NO. 3 - 5' - CAACACGTCGCCAAACGTTATCC - 3'.

4. An oligonucleotide having the nucleotide sequence SEQ NO. 4 - 5' - CAGCAATGCAGCCAGATCAAATC - 3'.

5. An oligonucleotide having the nucleotide sequence SEQ NO. 5 - 5' - (FAM)CACGAATGCA(BHQ1)AGCCGTTGATGACTTACCTAT - 3'.

Search for nucleic acid sequences

Basic Commands

FILE FIL	Enter a database or cluster to search or display answers.	=> FILE REGISTRY => FIL PATENTS
SEARCH S	Perform a search. If you do not append a search code, the search is performed in the Basic Index.	=> SEARCH BATES C/AU => S TSCA

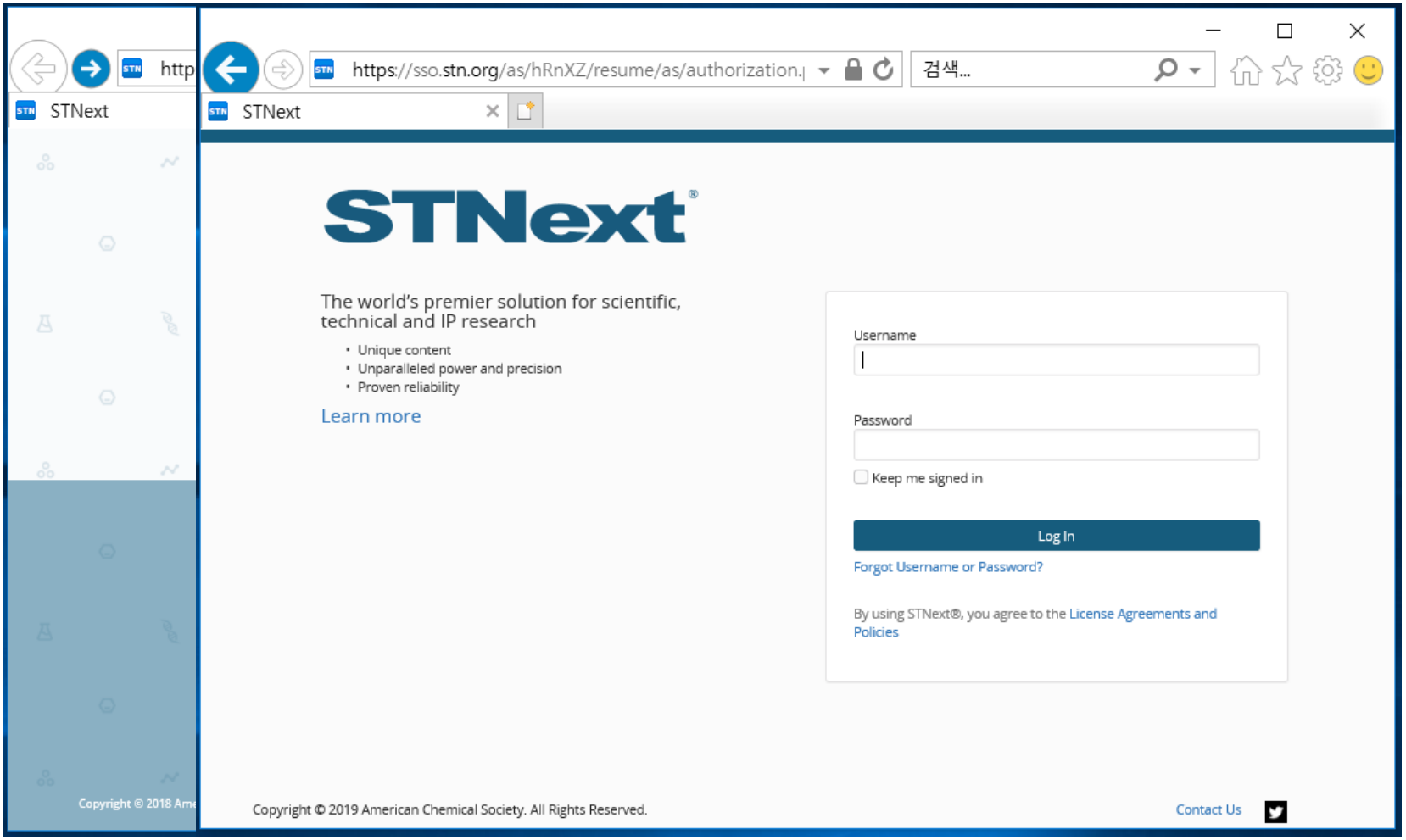
Exact and Pattern Searching

Search Type	Proteins	Nucleic Acids
Exact	/SQEP	/SQEN
Exact Family	/SQEFP	Not Applicable
Subsequence	/SQSP	/SQSN
Subsequence Family	/SQSFP	Not Applicable

Retrieved from STN website

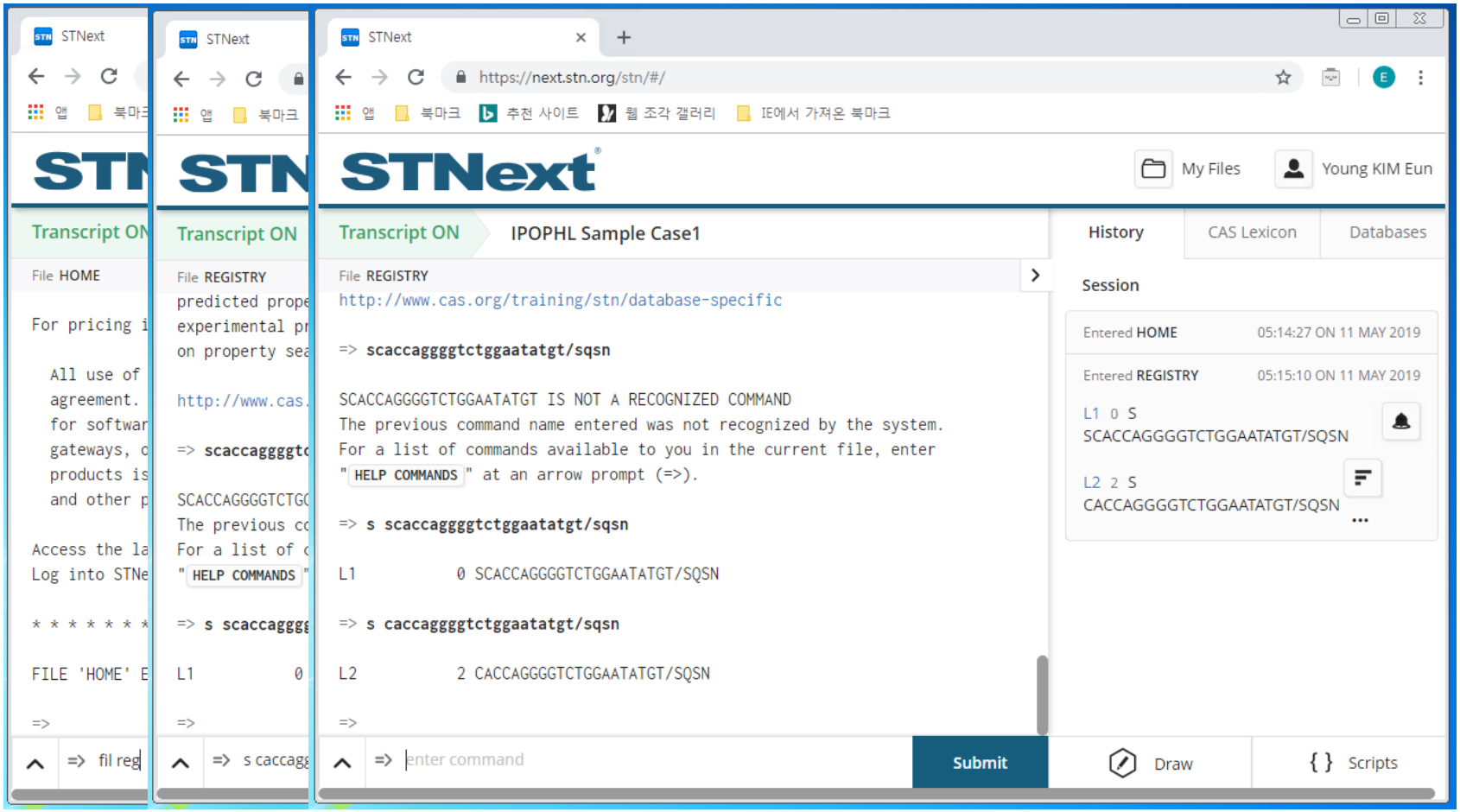
Case 1

STNext (https://next.stn.org/) => Log in



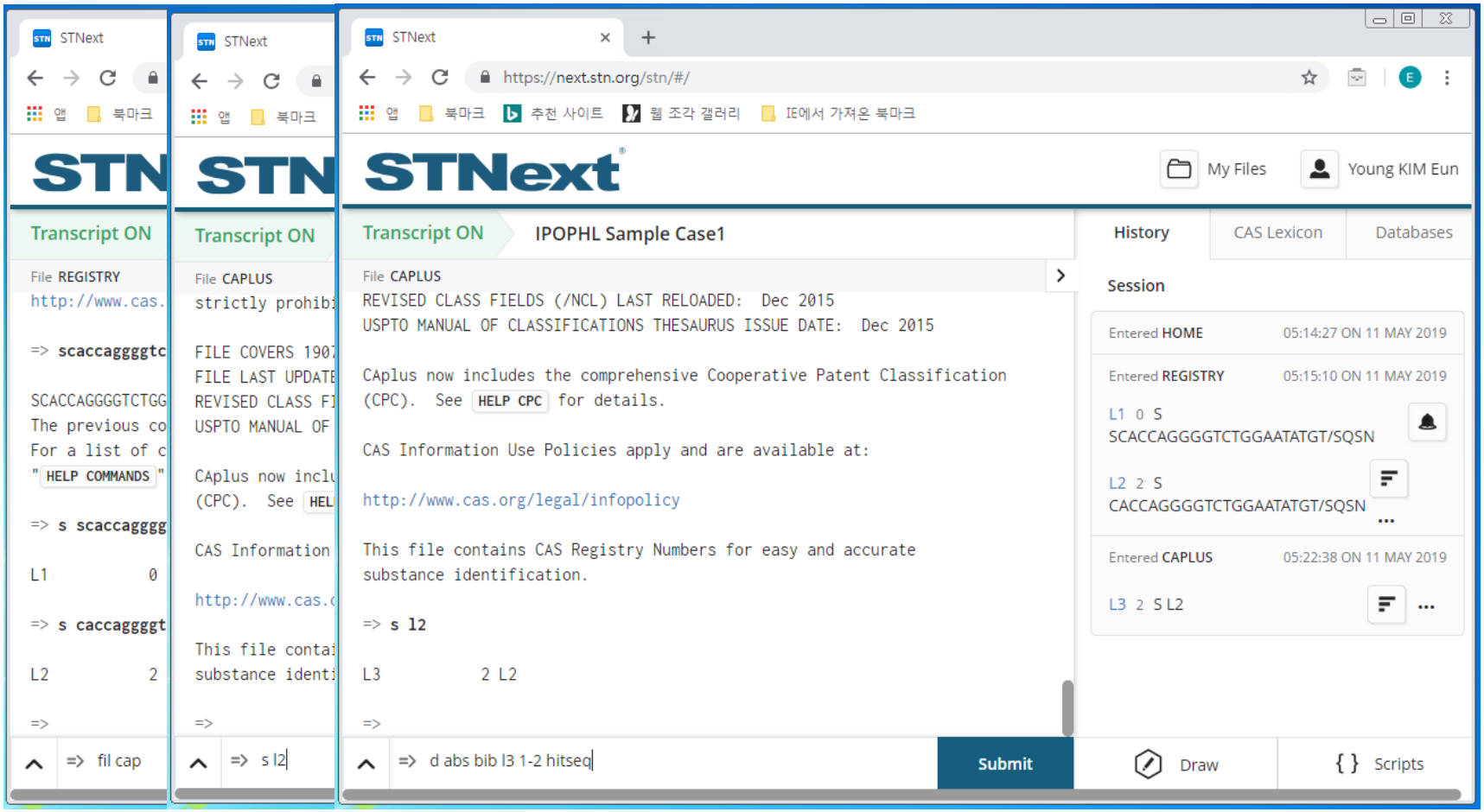
Case 1

Go to Registry DB => Search nucleotide sequence



Case 1

Go to CAplus DB => Search documents



Case 1

```
L3          2 L2

=> d abs bib l3 1-2 hitseq


L3   ANSWER 1 OF 2  CAPLUS  COPYRIGHT 2019 ACS on STN
AB   DNA probes of varying lengths and amplified product sizes for use in
     simultaneous and comprehensive detection of different bacterial pathogens
     are described.  A qPCR assay successfully detected the individual species
     in single or mixed DNA conditions.  Multi-species specificity tests proved
     the high specificity of each probe to specific bacter
     Optimized qPCR conditions enabled discrimination on t
     specificity of each probe.  The DNA probe kits are al
     form integral components in qPCR assay along with the
     protocols for bacterial pathogen detection.  The curr
     also utilized for comprehensive clin. diagnosis in hu
     organisms.
PatentPak PDF
AN   2018:1315613  CAPLUS Full-text
DN   169:480497
TI   Use of oligonucleotides probes for detection of bacte
     milkfish using real time PCR
IN   Barlaan, Edward A.
PA   Philippines
SO   Philipp. Pat. Appl., 26pp.
     CODEN: PHXXAQ
DT   Patent
LA   English
FAN.CNT 1
PPPI
```

```
     PATENT NO.          KIND  DATE      LANGUAGE   PatentPak
     ----------------    ----  --------  ---------- ------------------------
     PH 1201600444        A1   20180604  English    PDF
PI
     PATENT NO.          KIND  DATE        APPLICATION NO.          DATE
     ----------------    ----  --------    ---------------------    --------
     PH 1201600444        A1   20180604    PH 2016-1201600444       20161129
PRAI PH 2016-1201600444        20161129
IT   2248026-43-7
     RL: BUU (Biological use, unclassified); PRP (Properties); BIOL (Biological
     study); USES (Uses)
        (probe sequence; use of oligonucleotides probes for detection of
        bacterial pathogens in milkfish using real time PCR)
RN   2248026-43-7  CAPLUS
CN   DNA, d(C-A-C-C-A-G-G-G-G-T-C-T-G-G-A-A-T-A-T-G-T)  (CA INDEX NAME)


SEQ      1 caccaggggt ctggaatatg t
```

Data obtained using STN

Case 1

L3 ANSWER 2 OF 2 CAPLUS COPYRIGHT 2019 ACS on STN

AB A multiplex-PCR approach, employing 2 primer pairs directed to internal regions of the 16S rRNA and ureC genes, was utilized to analyze a collection of Photobacterium damselae strains, including 25 isolates of subspecies piscicida and 15 isolates of subspecies damselae. With this procedure, all the P. damselae subsp. damselae strains yielded 2 amplification products, one of 267 bp and the other of 448 bp, corresponding to internal fragments of the 16S rRNA and ureC genes, resp. However, P. damselae subsp. piscicida isolates only showed th PCR product of 267 bp (16S rRNA fragment), indicating the absence of the in its genome. We have constructed a DNA probe directed to a region of the ureC gene, and corroborated by dot blot hybridi the P. damselae subsp. piscicida lacks this gene, whereas it the subspecies damselae. This constitutes the first successf discrimination between both subspecies using a PCR procedure, become a useful tool for diagnosis of pasteurellosis in the f addn., since these 2 subspecies have been shown to share near rrn operon sequence, our results provided evidence that one c in the P. damselae speciation process included gain/loss even with the ure operon.

AN 2000:450189 CAPLUS Full-text

DN 134:217664

TI Multiplex PCR assay for ureC and 16S rRNA genes clearly discr between both subspecies of Photobacterium damselae

AU Osorio, C. R.; Toranzo, A. E.; Romalde, J. L.; Barja, J. L.

CS Departamento de Microbiologia y Parasitologia, Universidad de Santiago de Compostela, 15706, Spain

SO Diseases of Aquatic Organisms (2000), 40(3), 177-183 CODEN: DAOREO; ISSN: 0177-5103

DOI 10.3354/dao040177

PB Inter-Research

DT Journal

Data obtained using STN

LA English

IT 171219-83-3, GenBank U40071

RL: ANT (Analyte); BUU (Biological use, unclassified); PRP (Properties); ANST (Analytical study); BIOL (Biological study); USES (Uses) (nucleotide sequence; multiplex PCR assay for ureC and 16S rRNA genes clearly discriminates between both subspecies of Photobacterium damselae)

RN 171219-83-3 CAPLUS

CN DNA (Listonella damsela strain 501 gene ureC fragment) (9CI) (CA INDEX NAME)

SEQ

```
      1 cgtatatccg gaataggtaa agcgggtaac ccagacgtcc agcctaatgt
     51 tgatattgtt atcggtcccg gtacagaagt tgtggcaggc gaaggcaaga
    101 tcgtaacagc tggaggaatc gatactcaca ttcattttat ctgtcctcaa
    151 caagccgaag aaggattatg ttctggctta acaaccttta tcggtggcgg
    201 aaccggtcca gtggcgggtt ccaatgcaac aaccgtgaca ccaggggtct
    251 ggaatatgtc acgaatgctg gaagccgttg atgacttacc tattaatgtg
    301 ggtttatttg gtaaaggttg tgtcagtaaa ccagaagcat tacgagagca
    351 aattgaagct ggagctgttg gtttaaaact gcatgaagat tggggtgcaa
    401 cgcccgctgc tattaataac tgtatgaatg tggcagatga gatggatatt
    451 caagttgcta tc
```

Case 2 - 1

WO 2014/011520 A1

Priority Date : 2012.07.09, 2012.11.15
International Filing Date : 2013.07.08
International Publication Date : 2014.01.16

WHAT IS CLAIMED IS:

1. An immunoconjugate comprising an antibody that binds CD22 covalently attached to a cytotoxic agent, wherein the antibody binds an epitope within amino acids 20 to 240 of SEQ ID NO: 28, and wherein the cytotoxic agent is a nemorubicin derivative.

CAS Registry BLAST Search

❖ CAS REGISTRY℠

(1) Start CAS Registry BLAST client
(2) Start new search
(3) Paste sequence or load sequence file
(4) Select BLAST mode
(5) Adjust BLAST settings
(6) Review and select results
(7) Download two files: Script and alignment file
(8) From now STNext: Import script in STNext
(9) Start script and retrieve RNs
(10) Search for patents in CAplus
(11) Display in STNext
(12) Report with STNext (including alignment file)

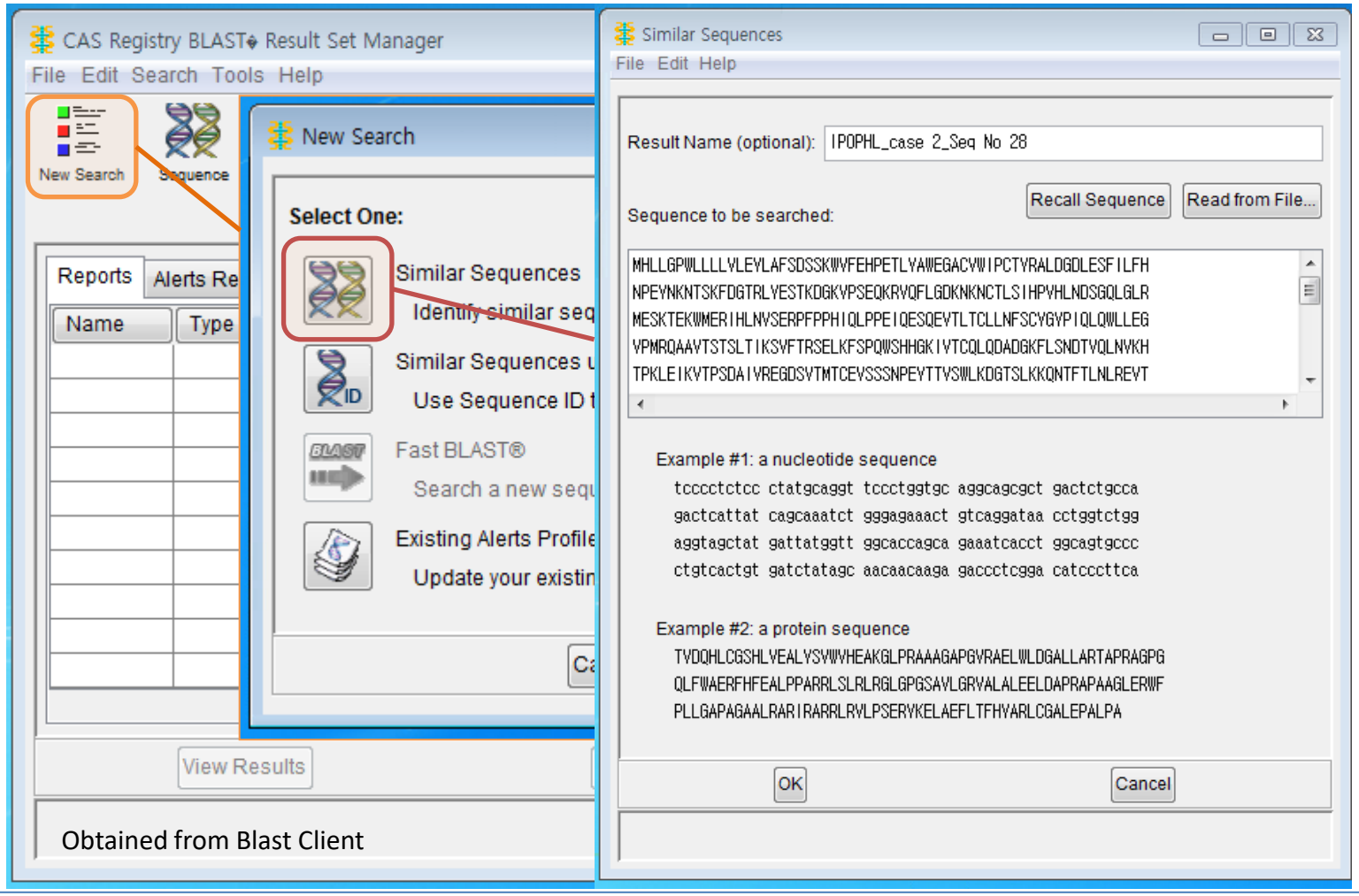
Retrieved from STN website

Case 2 - 1

(1) Start CAS Registry BLAST client

(2) Start new search

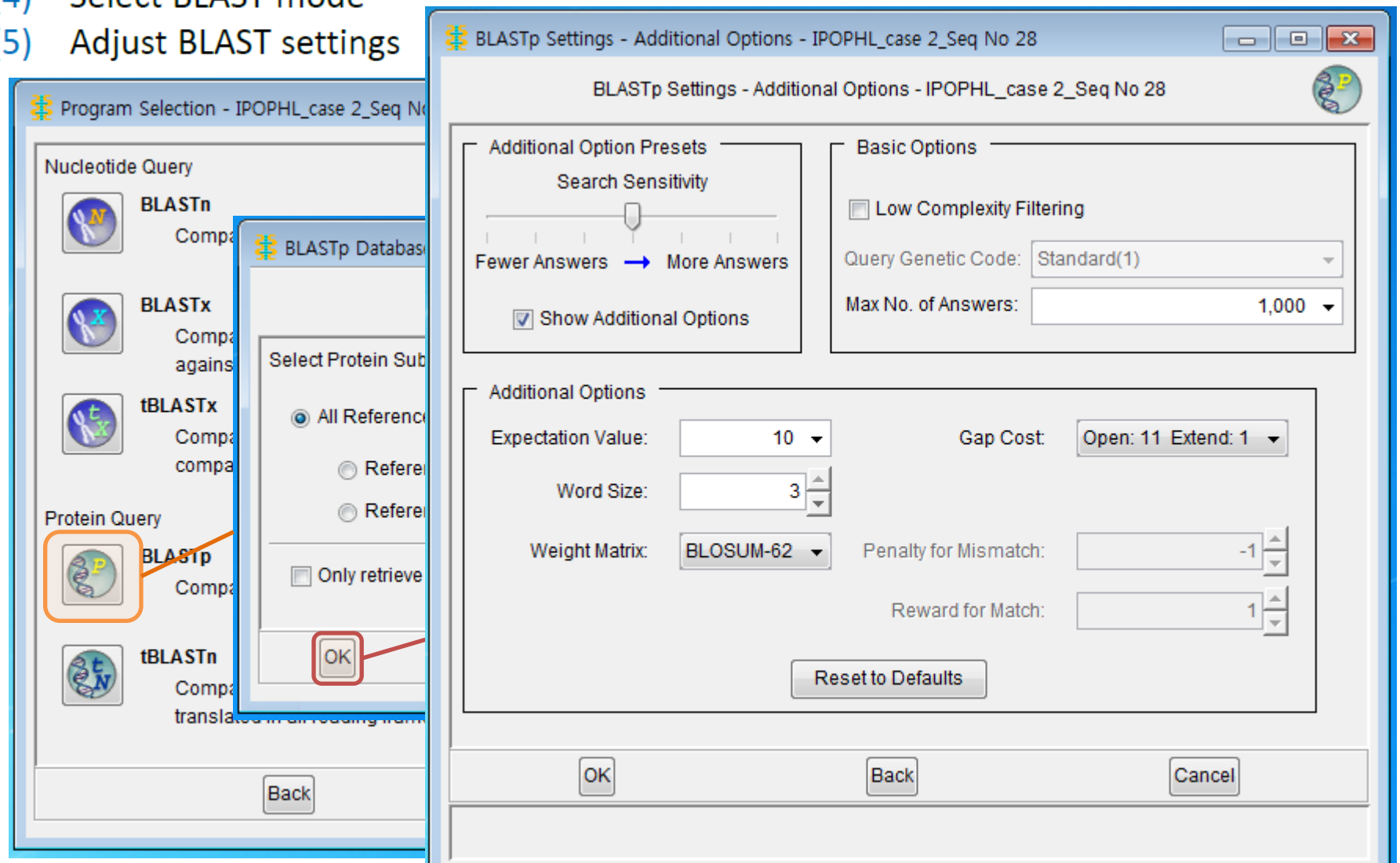
(3) Paste sequence or load sequence file



Case 2 - 1

(4) Select BLAST mode

(5) Adjust BLAST settings

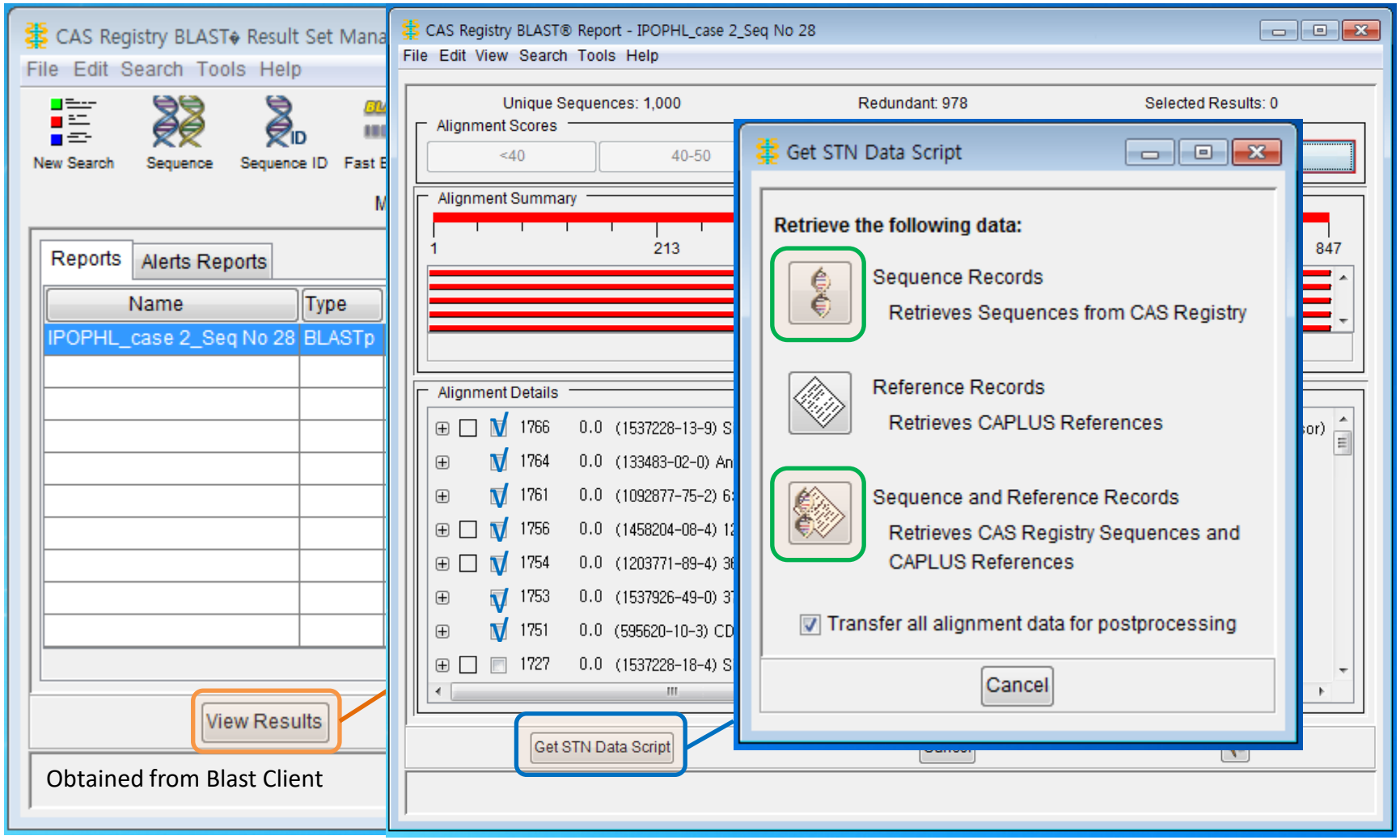


Obtained from Blast Client

Case 2 - 1

(6) Review and select results

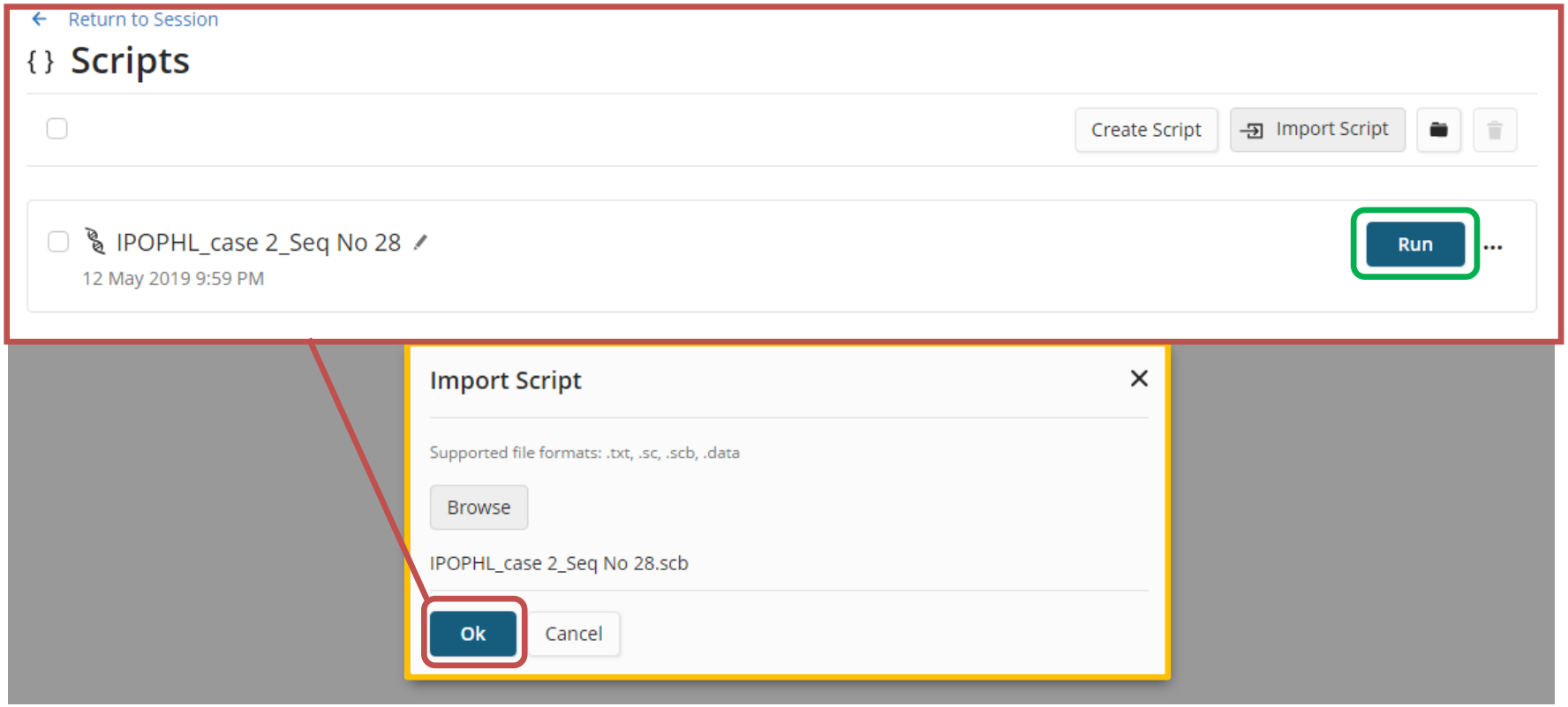
(7) Download two files: Script and alignment file



Case 2 - 1

(8) From now STNext: Import script in STNext
(9) Start script and retrieve RNs
(10) Search for patents in CAplus
(11) Display in STNext
(12) Report with STNext (including alignment file)

Obtained from STN



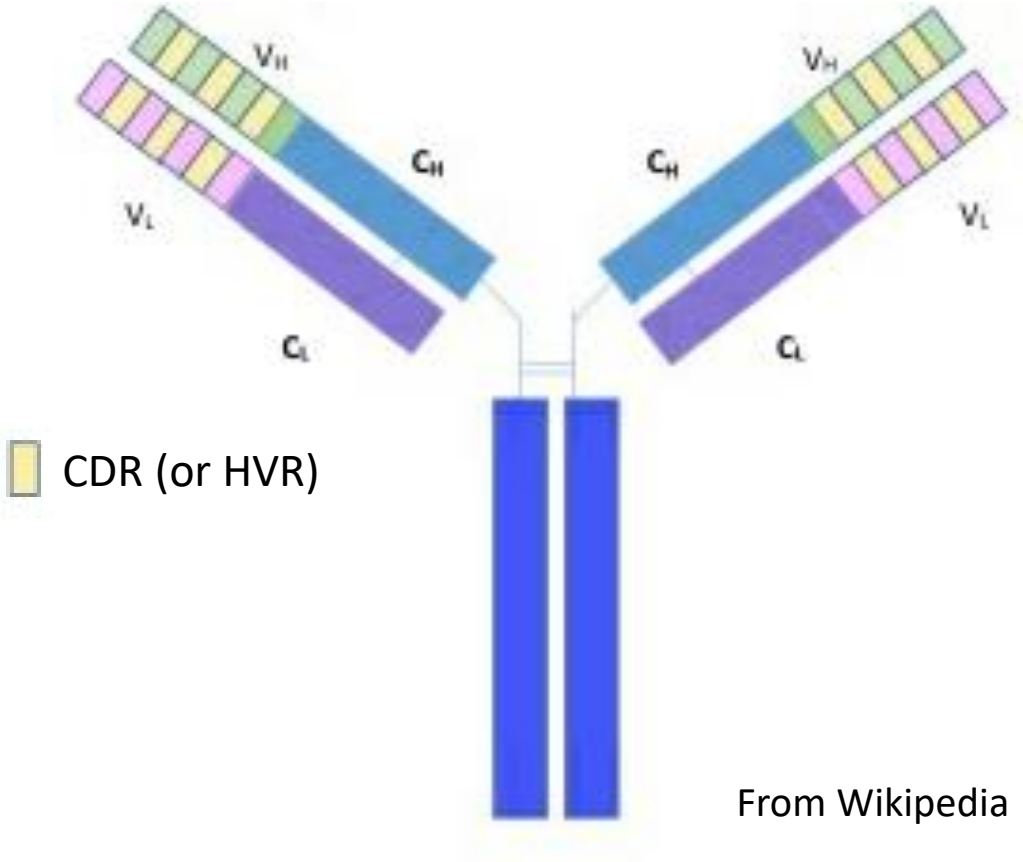
Case 2 - 2

4. The immunoconjugate of claim 1, wherein the antibody comprises:

a) (i) HVR-H1 comprising the amino acid sequence of SEQ ID NO: 9, (ii) HVR-H2 comprising the amino acid sequence of SEQ ID NO: 10, (iii) HVR-H3 comprising the amino acid sequence of SEQ ID NO: 11, (iv) HVR-L1 comprising an amino acid sequence selected from SEQ ID NOs: 12 and 15 to 22, (v) HVR-L2 comprising the amino acid sequence of SEQ ID NO: 13, and (vi) HVR-L3 comprising the amino acid sequence of SEQ ID NO: 14; or

b) (i) HVR-H1 comprising the amino acid sequence of SEQ ID NO: 9, (ii) HVR-H2 comprising the amino acid sequence of SEQ ID NO: 10, (iii) HVR-H3 comprising the amino acid sequence of SEQ ID NO: 11, (iv) HVR-L1 comprising the amino acid sequence of SEQ ID NO: 15, (v) HVR-L2 comprising the amino acid sequence of SEQ ID NO: 13, and (vi) HVR-L3 comprising the amino acid sequence of SEQ ID NO: 14.

Antibody Structure



From Wikipedia

Case 2 - 2

9	10F4 HVR H1	GYEFSRSWMN
10	10F4 HVR H2	GRIYPGDGDTNYSGKFKG
11	10F4 HVR H3	DGSSWDWYFDV
12	10F4 HVR L1	RSSQSIVHSNGNTFLE
13	10F4 HVR L2	KVSNRFS
14	10F4 HVR L3	FQGSQFPYT
15	10F4 HVR L1 N28V (10F4v3 HVR L1)	RSSQSIVHSVGNTFLE
16	10F4 HVR L1 N28A	RSSQSIVHSAGNTFLE
17	10F4 HVR L1 N28Q	RSSQSIVHSQGNTFLE
18	10F4 HVR L1 N28S	RSSQSIVHSSGNTFLE
19	10F4 HVR L1 N28D	RSSQSIVHSDGNTFLE
20	10F4 HVR L1 N28I	RSSQSIVHSIGNTFLE
21	10F4 HVR L1 N30A	RSSQSIVHSNGITFLE
22	10F4 HVR L1 N30Q	RSSQSIVHSNGQTFLE

Searching antibody comprising

HVR H1 : GYEFSRSWMN
HVR H2 : GRIYPGDGDTNYSGKFKG
HVR H3 : DGSSWDWYFDV

HVR L1 : RSSQSIVHS[NVAQSDI]G[NIQ]TFLE
HVR L2 : KVSNRFS
HVR L3 : FQGSQFPYT

A gap of one or more residues	.+ or .{1,} or .{1-}
Specify alternate residues	[ ]

Case 2 – 2

REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

http://www.cas.org/training/stn/database-specific

CDR-H1 CDR-H2 CDR-H3

```
=> S GYEFSRSWMN.+GRIYPGDGDTNYSGKFKG.+DGSSWDWYFDV/SQSP

L1          31 GYEFSRSWMN.+GRIYPGDGDTNYSGKFKG.+DGSSWDWYFDV/SQSP
```

CDR-L1 CDR-L2 CDR-L3

```
=> S RSSQSIVHS[NVAQSDI]G[NIQ]TFLE.+KVSNRFS.+FQGSQFPYT/SQSP

L2          30 RSSQSIVHS[NVAQSDI]G[NIQ]TFLE.+KVSNRFS.+FQGSQFPYT/SQSP
```

Data obtained using STN

Case 2 – 2

```
=> D L1 CN SQL SEQ 28-31


L1    ANSWER 28 OF 31  REGISTRY  COPYRIGHT 2019 ACS on STN
CN    Immunoglobulin, chimeric, anti-(Human CD22 (antigen)) (synthetic Mus
      musculus clone ch10F4 heavy chain V region)  (CA INDEX NAME)
OTHER NAMES:
CN    45: PN: WO2007140371 SEQID: 34 claimed protein
SQL   120

SEQ      1 QVQLQQSGPE LVKPGASVKI SCKASGYEFS RSWMNWVKQR PGQGREWIGR
                                   ===== ========== ==========
        51 IYPGDGDTNY SGKFKGKATL TADSSSSTAY MQLSSLTSVD SAVYFCARDG
           ========== ========== ========== ========== ==========
       101 SSWDWYFDVW GAGTTVTVSS
           =========
HITS AT:    26-109
```

HVR H1 : GYEFSRSWMN
HVR H2 : GRIYPGDGDTNYSGKFKG
HVR H3 : DGSSWDWYFDV

Data obtained using STN

Case 2 – 2

```
=> D L2 CN SQL SEQ 30


L2   ANSWER 30 OF 30  REGISTRY  COPYRIGHT 2019 ACS on STN
CN   Immunoglobulin, anti-(Human CD22 (antigen)) (Human-Mus musculus clone
     h10F4.v2 light chain)  (CA INDEX NAME)
OTHER NAMES:
CN   93: PN: WO2007140371 SEQID: 87 claimed protein
SQL  219

SEQ      1 DIQMTQSPSS LSASVGDRVT ITCRSSQSIV HSVGNTFLEW YQQKPGKAPK
                                    ======= ========== ==========
        51 LLIYKVSNRF SGVPSRFSGS GSGTDFTLTI SSLQPEDFAT YYCFQGSQFP
           ========== ========== ========== ========== ==========
       101 YTFGQGTKVE IKRTVAAPSV FIFPPSDEQL KSGTASVVCL LNNFYPREAK
           ==
       151 VQWKVDNALQ SGNSQESVTE QDSKDSTYSL SSTLTLSKAD YEKHKVYACE
       201 VTHQGLSSPV TKSFNRGEC
HITS AT:    24-102
```

HVR L1 : RSSQSIVHS[NVAQSDI]G[NIQ]TFLE
HVR L2 : KVSNRFS
HVR L3 : FQGSQFPYT

Data obtained using STN

Case 2 – 2

```
=> fil cap

     FILE 'CAPLUS' ENTERED AT 09:12:28 ON 11 MAY 2019

=> s l1

L3           11 L1

=> s l2

L4           11 L2

=> s l3 and l4

L5           11 L3 AND L4

=> s l5 and ad=<20130708

        9537891 AD=<20130708
                  (AD=<20130708)
L6           5 L5 AND AD=<20130708
```

Data obtained using STN

Case 2 – 2

```
=> d abs bib l6 1-5 hitseq


L6   ANSWER 1 OF 5  CAPLUS  COPYRIGHT 2019 ACS on STN
AB   Immunoconjugates of anti-CD79b antibodies and a pyrrolobenzodiazepine
     deriv. are described for use in the treatment of hematol. malignancies,
     including leukemia and lymphoma.  Conjugates capable of causing partial
     and complete remission of DLCL2 xenografts in mice were obtained.
     Complete remission was obsd. with an immunoconjugate dose of 12.86
     μg/kg with 1.65 drug mols./antibody.  Complete remission of Grant-519
     xenografts was also obsd.
PatentPak PDF | PatentPak PDF+ | PatentPak Interactive
AN   2014:70284  CAPLUS Full-text
DN   160:213004
TI   Immunoconjugates of anti-CD79B antibodies and pyrrolobenzodiazepines for
     the treatment of leukemia and lymphoma
IN   Polakis, Paul; Polson, Andrew; Spencer, Susan Diane; Yu, Shang-Fan
PA   Genentech, Inc., USA
SO   PCT Int. Appl., 124pp.
     CODEN: PIXXD2
DT   Patent
LA   English
FAN.CNT 1
```

Data obtained using STN

Case 2 - 2

PPPI

	PATENT NO.	KIND	DATE	LANGUAGE	PatentPak
	WO 2014011519	A1	20140116	English	PDF | PDF+ | Interactive
	US 20140030280	A1	20140130	English	PDF
	AU 2013288930	A1	20141204	English	PDF
	KR 2015030753	A	20150320	Korean	PDF
	CN 104540526	A	20150422	Chinese	PDF
	EP 2869850	B1	20170823	English	PDF
	JP 2015523380	T	20150813	Japanese	PDF
	ES 2643225	T3	20171121	Spanish	PDF
	US 20180169259	A1	20180621	English	PDF
PRAI	US 2012-61669270	P	20120709		
	US 2013-13936280	B1	20130708		
	WO 2013-US49517	W	20130708		

Priority Date is same with that of the present invention

Data obtained using STN

RN 1538645-33-8 CAPLUS
CN 41: PN: WO2014011519 SEQID: 48 unclaimed protein (CA INDEX NAME)

SEQ
1 EVQLVESGGG LVQPGGSLRL SCAASGYEFS RSWMNWVRQA PGKGLEWVGR
51 IYPGDGDTNY SGKFKGRFTI SADTSKNTAY LQMNSLRAED TAVYYCARDG
101 SSWDWYFDVW GQGTLVTVSS

RN 1538645-34-9 CAPLUS
CN 42: PN: WO2014011519 SEQID: 49 unclaimed protein (CA INDEX NAME)

SEQ
1 DIQMTQSPSS LSASVGDRVT ITCRSSQSIV HSVGNTFLEW YQQKPGKAPK
51 LLIYKVSNRF SGVPSRFSGS GSGTDFTLTI SSLQPEDFAT YYCFQGSQFP
101 YTFGQGTKVE IK

Case 2 – 2

L6 ANSWER 4 OF 5 CAPLUS COPYRIGHT 2019 ACS on STN

AB Immunoconjugates of anti-CD79b antibodies and a nemorubicin deriv. are described for use in the treatment of hematol. malignancies, including leukemia and lymphoma. Conjugates capable of causing complete remission of Grant-519 xenografts in mice were obtained. Complete remission was obsd. with an immunoconjugate dose of 7.83 μg/kg with 1.83 drug mols./antibody. Nemorubicin immunoconjugates are expected to be effective when monomethylauristatin E immunoconjugates are ineffective.

PatentPak PDF | PatentPak PDF+ | PatentPak Interactive

AN 2014:69436 CAPLUS Full-text

DN 160:201475

TI Immunoconjugates of anti-CD79B antibodies and nemorubicin for the treatment of leukemia and lymphoma

IN Polakis, Paul; Polson, Andrew; Spencer, Susan Diane; Yu, Shang-Fan; Zheng, Bing

PA Genentech, Inc., USA

SO PCT Int. Appl., 121pp.
CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

PPPI

PATENT NO.	KIND	DATE	LANGUAGE	PatentPak
WO 2014011521	A1	20140116	English	PDF | PDF+ | Interactive

Data obtai

Case 2 – 2

L6 ANSWER 5 OF 5 CAPLUS COPYRIGHT 2019 ACS on STN

AB Anti-CD22 antibodies and immunoconjugates thereof are provided. Methods of using anti-CD22 antibodies and immunoconjugates thereof are provided.

PatentPak PDF | PatentPak PDF+ | PatentPak Interactive

AN 2007:1390416 CAPLUS Full-text

DN 148:31939

TI Anti-CD22 antibodies and immunoconjugates for diagnosis and treatment of cancer or B cell proliferative disease

IN Ebens, Allen J., Jr.; Gray, Alane M.; Liang, Wei-Ching; Wu, Yan; Yu, Shang-Fan

PA Genentech, Inc., USA

SO PCT Int. Appl., 308 pp.
CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

PPPI

PATENT NO.	KIND	DATE	LANGUAGE	PatentPak
WO 2007140371	A2	20071206	English	PDF | PDF+ | Interactive
AU 2007266521	A1	20071206	English	PDF
AU 2007266521	B2	20100812	English	PDF
US 8524865	B2	20130903	English	PDF
KR 1328756	B1	20131118	Korean	PDF

Data obtained using STN

Case 2 - 2

WO2007140371

RN 959436-07-8 CAPLUS
CN Immunoglobulin, chimeric, anti-(Human CD22 (antigen)) (synthetic Mus musculus clone ch10F4 heavy chain V region) (CA INDEX NAME)

SEQ
1 QVQLQQSGPE LVKPGASVKI SCKASGYEFS RSWMNWVKQR PGQGREWIGR
51 IYPGDGDTNY SGKFKGKATL TADSSSSTAY MQLSSLTSVD SAVYFCARDG
101 SSWDWYFDVW GAGTTVTVSS

HVR H1 : #9
HVR H2 : #10
HVR H3 : #11

RN 959436-08-9 CAPLUS
CN Immunoglobulin, chimeric, anti-(Human CD22 (antigen)) (synthetic Mus musculus clone ch10F4 light chain V region) (CA INDEX NAME)

SEQ
1 DILMTQTPLS LPVSSGDQAS ISCRSSQSIV HSNGNTFLEW YLQKPGQSPK
51 LLIYKVSNRF SGVPDRFSGS GSGTDFTLKI SRVEAEDLGV YYCFQGSQFP
101 YTFGGGTKVE IK

HVR L1 : #12
HVR L2 : #13
HVR L3 : #14

RN 959436-05-6 CAPLUS
CN Immunoglobulin, anti-(Human CD22 (antigen)) (Human-Mus musculus clone h10F4.v1 light chain V region) (CA INDEX NAME)

SEQ
1 DIQMTQSPSS LSASVGDRVT ITCRSSQSIV HSNGNTFLEW YQQKPGKAPK
51 LLIYKVSNRF SGVPSRFSGS RSGTDFTLTI SSLQPEDFAT YYCFQGSQFP
101 YTFGQGTKVE IKR

HVR L1 : #12
HVR L2 : #13
HVR L3 : #14

Data obtained using STN

Case 2 – 2

WO2007140371

```
RN    959436-06-7  CAPLUS
CN    Immunoglobulin, anti-(Human CD22 (antigen)) (Human-Mus musculus clone
      h10F4.v2 light chain V region)  (CA INDEX NAME)


SEQ      1 DIQMTQSPSS LSASVGDRVT ITCRSSQSIV HSVGNTFLEW YQQKPGKAPK
        51 LLIYKVSNRF SGVPSRFSGS RSGTDFTLTI SSLQPEDFAT YYCFQGSQFP
       101 YTFGQGTKVE IKR
```

HVR L1 : #15
HVR L2 : #13
HVR L3 : #14

```
RN    959436-02-3  CAPLUS
CN    Immunoglobulin, anti-(Human CD22 (antigen)) (Human-Mus musculus clone
      h10F4.v3 light chain)  (CA INDEX NAME)


SEQ      1 DIQMTQSPSS LSASVGDRVT ITCRSSQSIV HSVGNTFLEW YQQKPGKAPK
        51 LLIYKVSNRF SGVPSRFSGS GSGTDFTLTI SSLQPEDFAT YYCFQGSQFP
       101 YTFGQGTKVE IKRTVAAPSV FIFPPSDEQL KSGTASVVCL LNNFYPREAK
       151 VQWKVDNALQ SGNSQESVTE QDSKDSTYSL SSTLTLSKAD YEKHKVYACE
       201 VTHQGLSSPC TKSFNRGEC
```

HVR L1 : #15
HVR L2 : #13
HVR L3 : #14

Data obtained using STN

THANK YOU!