

CDM Mapping Manual



이정문

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차례

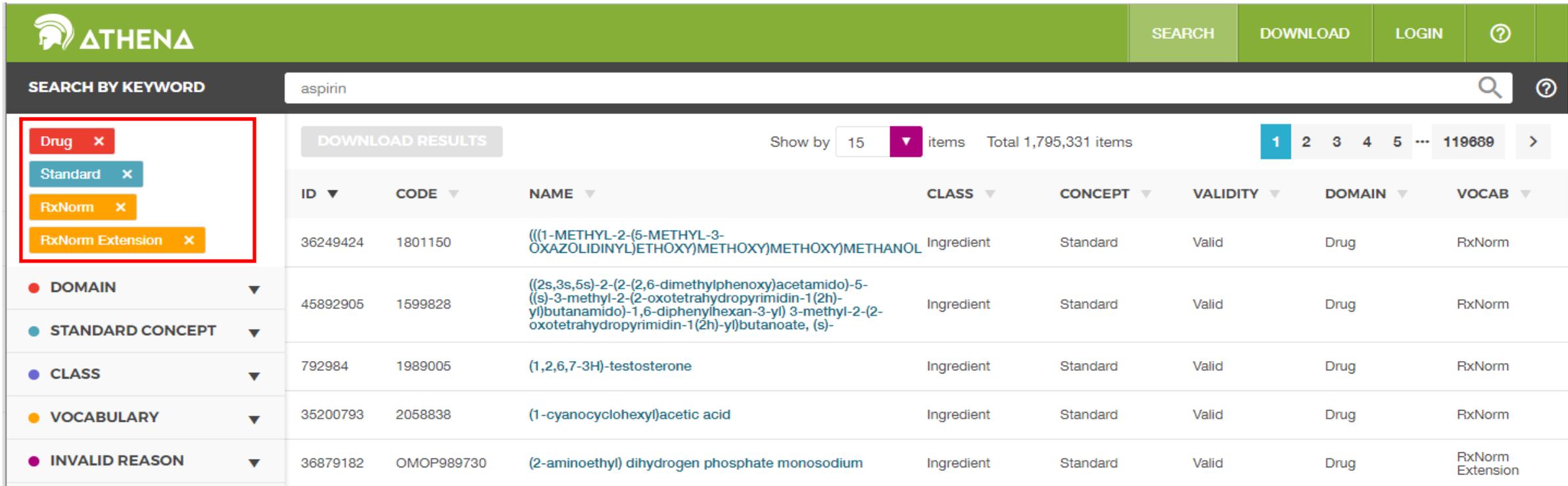
I. Drug Mapping & 예시

II. Measurement Mapping & 예시

III. Procedure Mapping & 예시

Drug Mapping

1. <http://athena.ohdsi.org/>
2. Filter 적용
 - ✓ Domain = Drug
 - ✓ Standard concept = standard
 - ✓ Vocabulary = RxNorm, RxNorm Extension



The screenshot shows the Athena search interface. The search bar contains the keyword "aspirin". The results are displayed in a table with columns: ID, CODE, NAME, CLASS, CONCEPT, VALIDITY, DOMAIN, and VOCAB. The table shows 5 results, with the first one highlighted. The filters on the left are: Drug (red), Standard (blue), RxNorm (orange), and RxNorm Extension (yellow). The table also shows a "DOWNLOAD RESULTS" button and a "Show by" dropdown set to 15 items, with a total of 1,795,331 items.

ID	CODE	NAME	CLASS	CONCEPT	VALIDITY	DOMAIN	VOCAB
36249424	1801150	(((1-METHYL-2-(5-METHYL-3-OXAZOLIDINYL)ETHOXY)METHOXY)METHANOL	Ingredient	Standard	Valid	Drug	RxNorm
45892905	1599828	(((2s,3s,5s)-2-(2-(2,6-dimethylphenoxy)acetamido)-5-((s)-3-methyl-2-(2-oxotetrahydropyrimidin-1(2h)-yl)butanamido)-1,6-diphenylhexan-3-yl) 3-methyl-2-(2-oxotetrahydropyrimidin-1(2h)-yl)butanoate, (s)-	Ingredient	Standard	Valid	Drug	RxNorm
792984	1989005	(1,2,6,7-3H)-testosterone	Ingredient	Standard	Valid	Drug	RxNorm
35200793	2058838	(1-cyanocyclohexyl)acetic acid	Ingredient	Standard	Valid	Drug	RxNorm
36879182	OMOP989730	(2-aminoethyl) dihydrogen phosphate monosodium	Ingredient	Standard	Valid	Drug	RxNorm Extension

Drug mapping 시 고려사항

1순위: 성분명 + 용량 + 조제형태

ex) Acetaminophen 160 MG Oral Tablet
성분명 용량 조제형태



concept_id :1127078

2순위: 성분명 + 조제형태

ex) Acetaminophen Oral Tablet
성분명 조제형태



concept_id : 40005746

3순위: 성분명

ex) Acetaminophen
성분명



concept_id : 1125315

주성분 코드의 제형 정보

제형코드	제형명칭	제형코드	제형명칭	제형코드	제형명칭	제형코드	제형명칭
TB	정제, 저작정	GE	장용과립제	OO	안연고제, 점안겔제	PA	페이스트제
CH	경질캡슐제	GR	서방형과립제	XD	건조엑스제	TS	경피흡수제
CS	경질캡슐제	LQ	액제	XL	유동엑스제	PO	카타플라스마제
CE	장용캡슐제	SY	시럽제, 건조시럽	XS	연조엑스제	PC	패취제
TE	장용정제	SS	현탁제	IJ	주사제	PL	경고제, 첩부제
TD	확산정, 속봉정	LN	리니먼트제	IM	이식제 및 체내장치	DS	스폰지 및 드레싱
TR	서방형정제	LT	로션제	IS	관류액 등	TT	틴크제
CR	서방캡슐제	EM	유제	SI	분무제 및 흡입제	EN	포말
TL	설하정	AW	방향수제	AE	에어로솔제	EX	검사용
TC	구강정	SR	주정제	SP	좌제	MS	기타제형
TO	트로키제	EL	엘릭서제	PI	환제		
GN	과립제, 세립	LE	레모네이드제	CM	크림제, 겔제		
PD	산제	OS	점안제(점안액)	OM	연고제		

출처: 약제 급여 목록 및 급여 상한금액표
[시행 2019. 9. 1.] [보건복지부고시 제
2019-186호, 2019. 8. 26., 일부개정]

1. Midron 2.5mg(명문)

① 의약품 검색

미드론 정 MIDRON TAB [단일제]

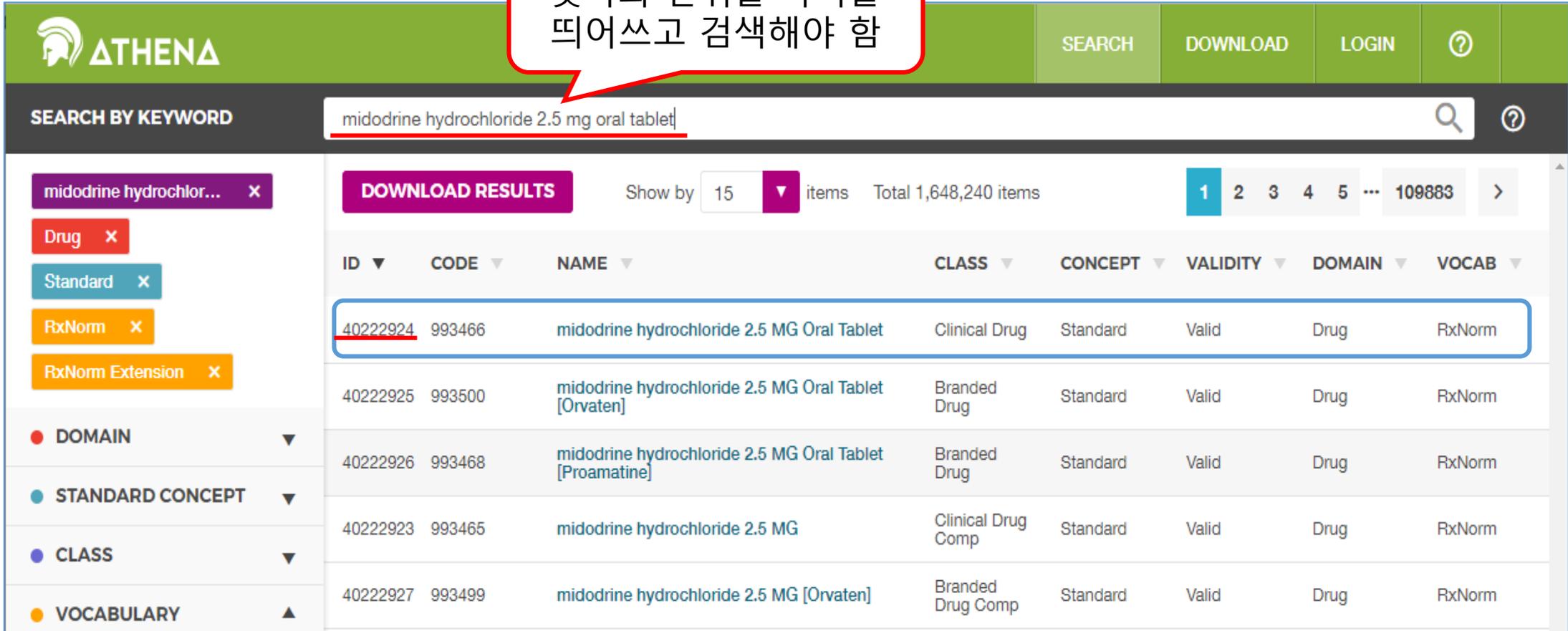
구분	전문 / 정제 / 보험 제형정보 확인	
제조사	명문제약(주) (Myungmoon Pharm. Co., Ltd.) 홈페이지	
판매사	명문제약(주) (Myungmoon Pharm. Co., Ltd.) 홈페이지	
생산발매상황	생산/유통 중	
주성분코드	195601ATB	
보험정보	649801760(보)W108/정 급여(2018-02-01) 649801760(보)W109/정 급여(2017-02-01)	
조성	midodrine hydrochloride 2.5mg 성분명과 용량 확인	
첨가제	옥수수전분/미결정셀룰로오스/콜로이드성이산화규소/탈크/스테아르산마그네슘	
ATC코드	C01CA17 - midodrine 코드정보 상세보기	
복지부분류	216 - 혈관수축제	
KIMS분류	2k - 혈관수축제	
포장정보(표준코드)	2.5밀리그램 x 30정/병 (8806498017610) 2.5밀리그램 x 100정/PTP (8806498017634) 2.5밀리그램 x 100정/병 (8806498017627)	

'Midodrine hydrochloride 2.5 mg oral tablet'으로 검색

1. Midron 2.5mg(명문)

② ATHENA에 해당 컨셉 검색

숫자와 단위를 사이를 띄어쓰고 검색해야 함



The screenshot shows the ATHENA search interface. The search bar contains the text "midodrine hydrochloride 2.5 mg oral tablet". The search results are displayed in a table with the following columns: ID, CODE, NAME, CLASS, CONCEPT, VALIDITY, DOMAIN, and VOCAB. The first row is highlighted with a blue border, indicating the selected result.

ID	CODE	NAME	CLASS	CONCEPT	VALIDITY	DOMAIN	VOCAB
40222924	993466	midodrine hydrochloride 2.5 MG Oral Tablet	Clinical Drug	Standard	Valid	Drug	RxNorm
40222925	993500	midodrine hydrochloride 2.5 MG Oral Tablet [Orvaten]	Branded Drug	Standard	Valid	Drug	RxNorm
40222926	993468	midodrine hydrochloride 2.5 MG Oral Tablet [Proamatine]	Branded Drug	Standard	Valid	Drug	RxNorm
40222923	993465	midodrine hydrochloride 2.5 MG	Clinical Drug Comp	Standard	Valid	Drug	RxNorm
40222927	993499	midodrine hydrochloride 2.5 MG [Orvaten]	Branded Drug Comp	Standard	Valid	Drug	RxNorm

⇒concept_id : 40222924 로 매핑

concept_id : OMOP 표준 코드

concept_code : 해당 concept의 레퍼런스 vocabulary에서의 코드

(ex. 993466 = RxNorm에서 'midodrine hydrochloride 2.5 mg oral tablet' 에 해당하는 코드)

2. 씨제이 도부타민 프리믹스 100mg 주 500ml

① 의약품 검색

■ 씨제이 도부타민 프리믹스 100mg 주 500ml DOBUTAMINE HCl PREMIX 100mg INJ 500ml [복합제]

구분	전문 / 주사 / 보험 제형정보 확인	
제조사	씨제이헬스케어주식회사 (CJ HealthCare) > 홈페이지	
판매사	씨제이헬스케어주식회사 (CJ HealthCare) > 홈페이지	
생산발매상황	생산/유통 중	
주성분코드	399600BJ	
보험정보	640001500(보)₩7,114/500ml/백 급여(2018-02-01) 640001500(보)₩7,353/500ml/백 급여(2017-02-01)	
조성	100ml 중 dobutamine hydrochloride 114mg (100mg as dobutamine) dextrose monohydrate 5000mg	
첨가제	염산/아황산수소나트륨/주사용수	
ATC코드	C01CA07 - dobutamine > 코드정보 상세보기	
복지부분류	211 - 강심제	
KIMS분류	2a - 심질환용제	
포장정보(표준코드)	500밀리리터 x 1개/백 (8806400015017)	

✓ 성분명과 용량 확인 ex) dobutamine 100 mg/100ml
✓ 단위환산 필요!!
→ dobutamine 1 mg/ml
dextrose monohydrate 5000 mg/100ml
→ glucose 50 mg/ml

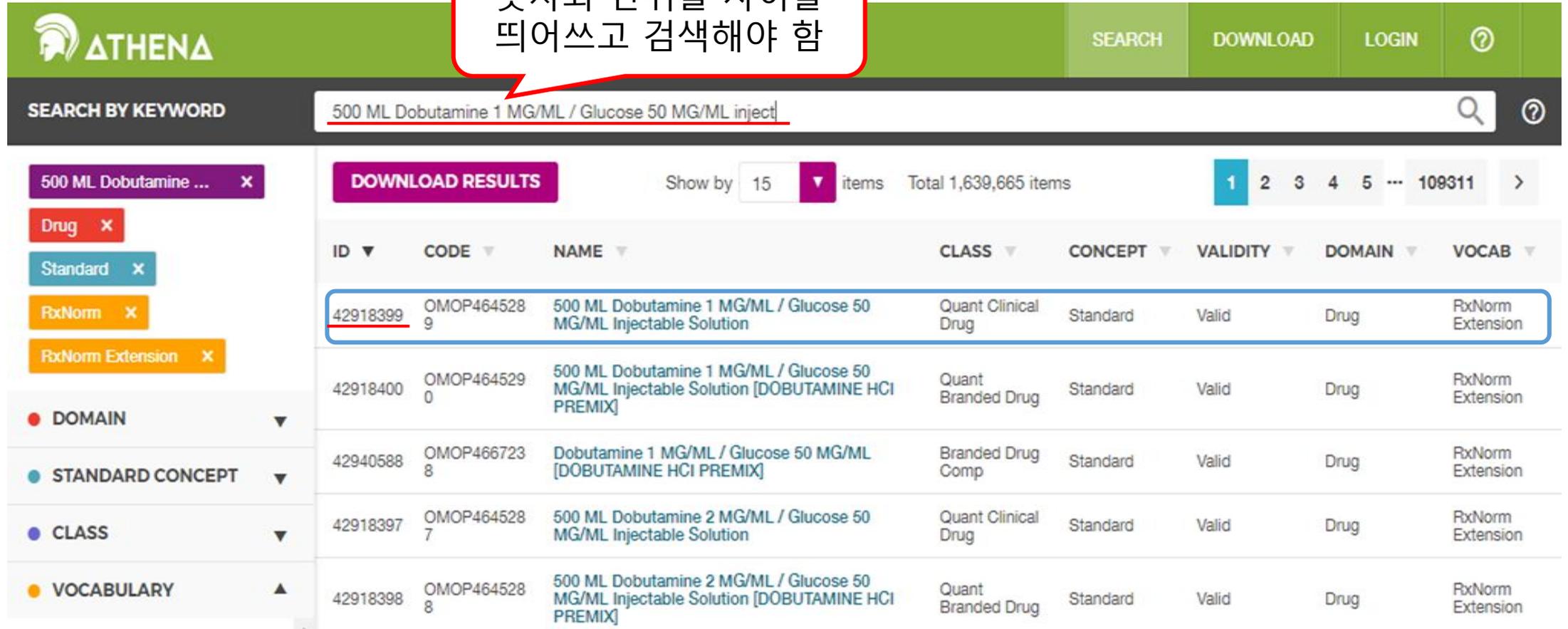
용량 확인

'500 ML dobutamine 1 mg/ml / glucose 50 mg/ml inject '으로 검색!

2. 씨제이 도부타민 프리믹스 100mg 주 500ml

② ATHENA에 해당 컨셉 검색

숫자와 단위를 사이를
띄어쓰고 검색해야 함



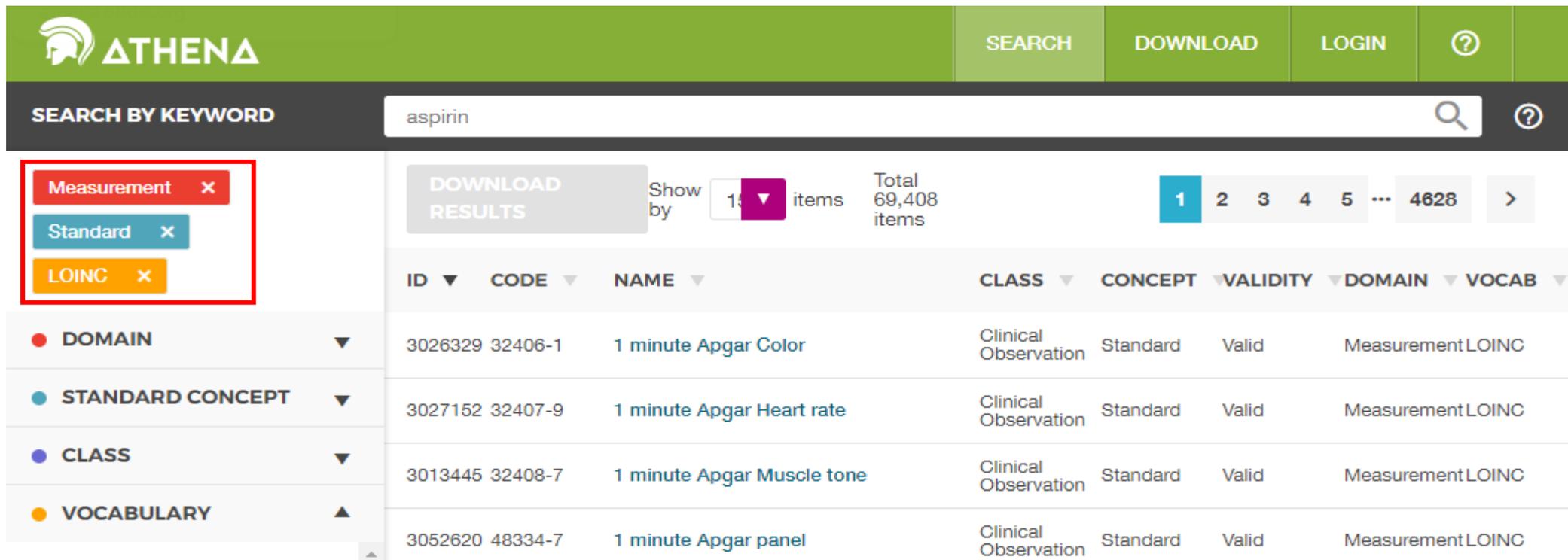
The screenshot shows the ATHENA search interface. The search bar contains the query "500 ML Dobutamine 1 MG/ML / Glucose 50 MG/ML inject". The results are displayed in a table with columns: ID, CODE, NAME, CLASS, CONCEPT, VALIDITY, DOMAIN, and VOCAB. The first result is highlighted with a blue border, showing ID 42918399 and CONCEPT Standard.

ID	CODE	NAME	CLASS	CONCEPT	VALIDITY	DOMAIN	VOCAB
42918399	OMOP4645289	500 ML Dobutamine 1 MG/ML / Glucose 50 MG/ML Injectable Solution	Quant Clinical Drug	Standard	Valid	Drug	RxNorm Extension
42918400	OMOP4645290	500 ML Dobutamine 1 MG/ML / Glucose 50 MG/ML Injectable Solution [DOBUTAMINE HCl PREMIX]	Quant Branded Drug	Standard	Valid	Drug	RxNorm Extension
42940588	OMOP4667238	Dobutamine 1 MG/ML / Glucose 50 MG/ML [DOBUTAMINE HCl PREMIX]	Branded Drug Comp	Standard	Valid	Drug	RxNorm Extension
42918397	OMOP4645287	500 ML Dobutamine 2 MG/ML / Glucose 50 MG/ML Injectable Solution	Quant Clinical Drug	Standard	Valid	Drug	RxNorm Extension
42918398	OMOP4645288	500 ML Dobutamine 2 MG/ML / Glucose 50 MG/ML Injectable Solution [DOBUTAMINE HCl PREMIX]	Quant Branded Drug	Standard	Valid	Drug	RxNorm Extension

⇒concept_id : 42918399 로 매핑

Measurement Mapping

1. <http://athena.ohdsi.org/>
2. Filter 적용
 - ✓ Domain = Measurement
 - ✓ Standard Concept = Standard
 - ✓ Vocabulary = LOINC (주로)



The screenshot shows the Athena OHDSI search interface. The search bar contains the keyword "aspirin". The results are filtered by Domain (Measurement), Standard Concept (Standard), and Vocabulary (LOINC). The results table shows the following data:

ID	CODE	NAME	CLASS	CONCEPT	VALIDITY	DOMAIN	VOCAB
3026329	32406-1	1 minute Apgar Color	Clinical Observation	Standard	Valid	Measurement	LOINC
3027152	32407-9	1 minute Apgar Heart rate	Clinical Observation	Standard	Valid	Measurement	LOINC
3013445	32408-7	1 minute Apgar Muscle tone	Clinical Observation	Standard	Valid	Measurement	LOINC
3052620	48334-7	1 minute Apgar panel	Clinical Observation	Standard	Valid	Measurement	LOINC

Measurement Mapping 시 고려사항

검사에서 사용하는 단위

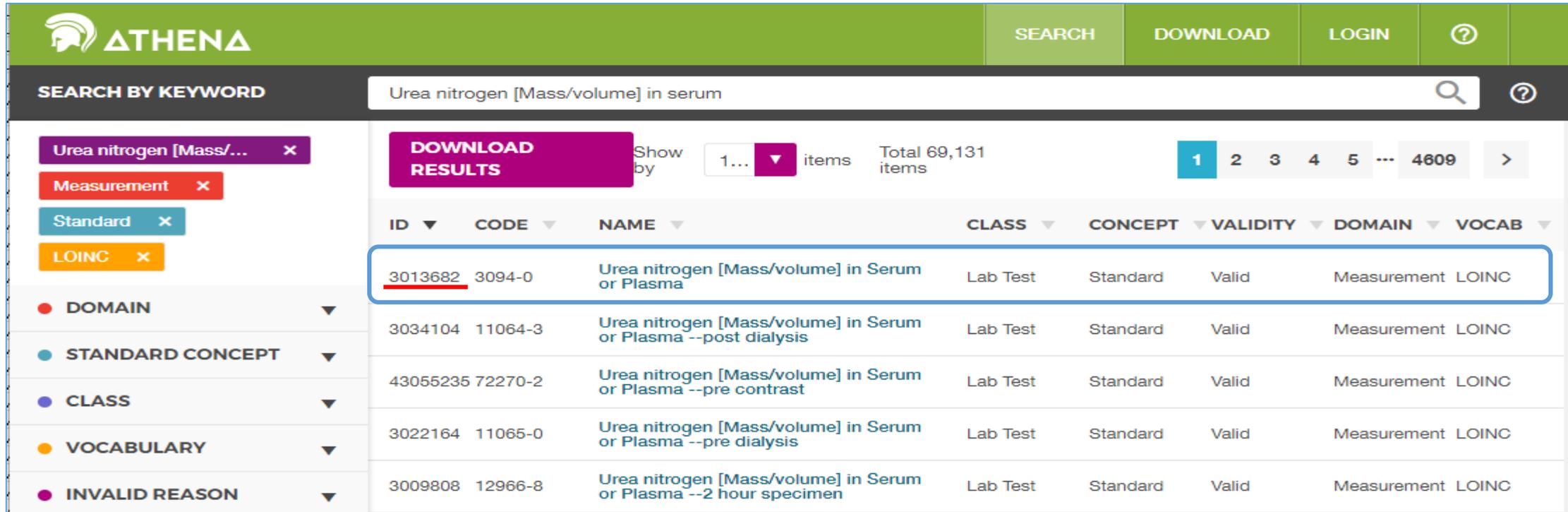
dL	10분의 1L	Volume
mL	1000분의 1L	Volume
mg	1000분의 1g	Mass
μg	100만분의 1g	Mass
ng	10억분의 1g	Mass
pg	1조분의 1g	Mass
U	검사별로 정해진 단위	Units Enzymatic activity
mIU	1000분의 1U	Units
μU	100만분의 1U	Units
mol	원자와 분자의 수량	Moles
mmol	1000분의 1mol	Moles
μmol	100만분의 1mol	Moles
nmol	10억분의 1mol	Moles

1. BUN (혈중요소질소)

① 해당 검사의 단위, 검체 파악 → 단위: mg/dL, 검체: serum

: mg/dL → [mass/volume]

② Athena 에서 'Urea nitrogen [Mass/volume] in serum'으로 검색



The screenshot shows the Athena search interface. The search bar contains the query "Urea nitrogen [Mass/volume] in serum". The results table is displayed with the following columns: ID, CODE, NAME, CLASS, CONCEPT, VALIDITY, DOMAIN, and VOCAB. The first row is highlighted with a blue border, indicating the selected concept.

ID	CODE	NAME	CLASS	CONCEPT	VALIDITY	DOMAIN	VOCAB
<u>3013682</u>	3094-0	Urea nitrogen [Mass/volume] in Serum or Plasma	Lab Test	Standard	Valid	Measurement	LOINC
3034104	11064-3	Urea nitrogen [Mass/volume] in Serum or Plasma --post dialysis	Lab Test	Standard	Valid	Measurement	LOINC
43055235	72270-2	Urea nitrogen [Mass/volume] in Serum or Plasma --pre contrast	Lab Test	Standard	Valid	Measurement	LOINC
3022164	11065-0	Urea nitrogen [Mass/volume] in Serum or Plasma --pre dialysis	Lab Test	Standard	Valid	Measurement	LOINC
3009808	12966-8	Urea nitrogen [Mass/volume] in Serum or Plasma --2 hour specimen	Lab Test	Standard	Valid	Measurement	LOINC

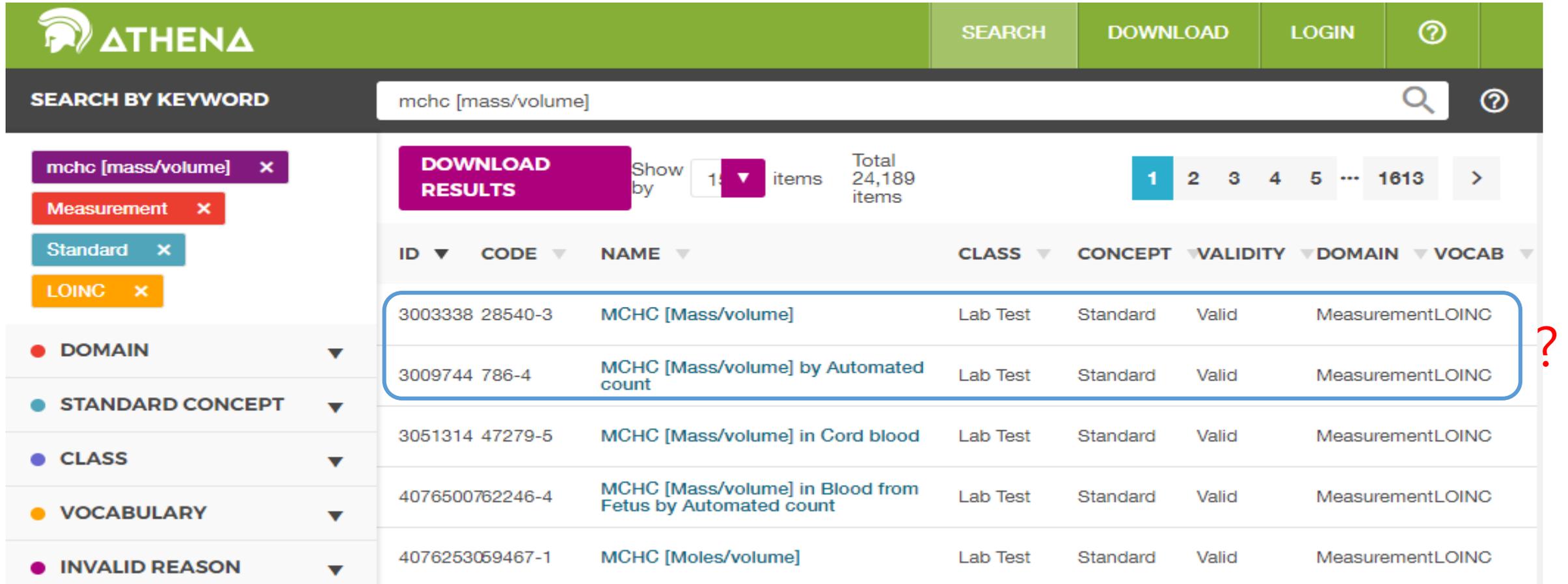
⇒ concept_id : 3013682 로 매핑

2. MCHC(평균적혈구헤모글로빈농도)

① 해당 검사의 단위, 검체 파악 -> 단위: g/dL , 검체: whole blood

: g/dL → [mass/volume]

② Athena 에서 'mchc [mass/volume]'으로 검색



The screenshot shows the Athena search interface. The search bar contains 'mchc [mass/volume]'. The results table is as follows:

ID	CODE	NAME	CLASS	CONCEPT	VALIDITY	DOMAIN	VOCAB
3003338	28540-3	MCHC [Mass/volume]	Lab Test	Standard	Valid	Measurement	LOINC
3009744	786-4	MCHC [Mass/volume] by Automated count	Lab Test	Standard	Valid	Measurement	LOINC
3051314	47279-5	MCHC [Mass/volume] in Cord blood	Lab Test	Standard	Valid	Measurement	LOINC
4076500762246-4		MCHC [Mass/volume] in Blood from Fetus by Automated count	Lab Test	Standard	Valid	Measurement	LOINC
4076253059467-1		MCHC [Moles/volume]	Lab Test	Standard	Valid	Measurement	LOINC

The first row of the table is highlighted with a blue border. A red question mark is visible to the right of this row.

③ 비슷한 개념 두 가지 중에 어떤 것이 적합한 지 선택하기 어려울때에는,

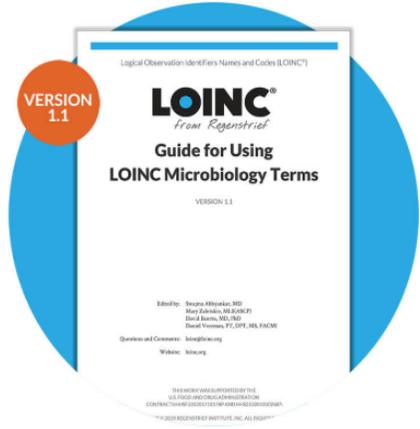
<https://loinc.org/> 에서 RELMA 다운로드

NOW AVAILABLE: LOINC Version 2.66 and RELMA Version 6.25 Log In Sign Up

LOINC
From Regenstrief

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The international standard for identifying health measurements, observations, and documents.



Reference labs, healthcare organizations, U.S. federal agencies, insurance companies, software vendors, *in vitro* diagnostic testing companies, and more than 86,600 registered users from 176 countries use LOINC to move data seamlessly between systems.

It's free, but invaluable.

Get Started

NOW AVAILABLE: LOINC Version 2.66 and RELMA Version 6.25 Log In Sign Up

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Get LOINC

You can download LOINC as the following combined file—or the various individual files referenced below.

LOINC and RELMA Complete Package

LOINC and RELMA Complete Download File

VERSION 2.66 AND 6.25 • RELEASED 2019-06-21 (5 MONTHS AGO)

675 MB

Compressed zip file containing the RELMA® program installer (Windows) and all of the core LOINC® files, including the LOINC® Table (all formats), documentation, and all accessory files.

LOINC and RELMA Files à la carte

LOINC Table

VERSION 2.66
RELEASED 2019-06-21

The LOINC table contains fields for LOINC codes, each of the six parts of the formal name of the LOINC, synonyms, comments, and other information. It is distributed as a CSV format text file or a Microsoft Access database.

A release-to-release Change File and Change Report is also available. Documentation includes LOINC Release Notes and the comprehensive LOINC User's Guide.

RELMA

VERSION 6.25
RELEASED 2019-06-21

The Regenstrief LOINC Mapping Assistant (RELMA®) is a Microsoft Windows application for searching the LOINC database and helper for mapping local codes to LOINC codes. Documentation includes RELMA Release Notes and a comprehensive RELMA Manual.

You can also read the complete description of [RELMA's features and requirements.](#)

Accessory Files

VERSION 2.66
RELEASED 2019-06-21

Other files in the LOINC distribution:

- LOINC Part File
- LOINC Answer File
- LOINC Group File
- LOINC Display Name File
- LOINC Consumer Name File
- Hierarchy and Panel Structure Files
- Top 2000+ Results
- Top 300 Orders
- Common UCUM Codes
- Linguistic Variants File
- LOINC/SNOMED CT Expression Association and Map Sets (Technology Preview)
- LOINC/IEEE Medical Device Code Mapping Table
- LOINC Document Ontology
- LOINC/RSNA Radiology Playbook

Download Options **Download Options** **Download Options**

- ④ RELMA에서 검색을 통해 그 검사의 component, property, timing, system, scale, method 정보와 어떤 코드가 더 자주 쓰이는지 코드의 Rank를 알 수 있는데 이것을 고려하여 매핑한다.

Regenstrief LOINC Mapping Assistant (RELMA) - Map Local Terms for "SAMPLE"

File Tools HIPAA Lab Auto Mapper View Help

Welcome wjdans log out

Search Mapping View All Working Set Terms Hierarchy & Search Limits Part Search Answer List Search

MCHC Units Search

Use Standard Search No Common Limits

Rank가 더 높은 이 코드를 선택

Row	Score	LOINC	Component	Property	Timing	System	Scale	Method	ExUCUM...	ExUnits	Rank	SIRank	LForms	ComMaps	ComInst	Class	LongName
4	23.3451	786-4	Erythrocyte mean corpuscular hemoglobin concentration	MCnc	Pt	RBC	Qn	Automated count	g/dL	g/L;g/dL	10	10		116	20	HEM/BC	MCHC [Mass/volume] by Automated count
1	23.3451	62246-4	Erythrocyte mean corpuscular hemoglobin concentration	MCnc	Pt	Bld^Fetus	Qn	Automated count	g/L	g/L				1	1	HEM/BC	MCHC [Mass/volume] in Blood from Fetus by Automated count
5	23.3451	59467-1	Erythrocyte mean corpuscular hemoglobin concentration	SCnc	Pt	RBC	Qn		mmol/L	mmol/L				2	1	HEM/BC	MCHC [Moles/volume]
2	23.3451	47279-5	Erythrocyte mean corpuscular hemoglobin concentration	MCnc	Pt	BldCo	Qn		g/L	g/L				4	2	HEM/BC	MCHC [Mass/volume] in Cord blood
3	23.3451	28540-3	Erythrocyte mean corpuscular hemoglobin concentration	MCnc	Pt	RBC	Qn		g/dL	g/dL				27	4	HEM/BC	MCHC [Mass/volume]

→ '786-4'가 레퍼런스 코드, 즉 concept_code가 786-4인 concept으로 매핑

⑤ Athena에서 확인 후 concept_id 매핑

ATHENA SEARCH DOWNLOAD LOGIN ?

SEARCH BY KEYWORD ?

mchc [mass/volume] **Measurement** **Standard** **LOINC**

DOWNLOAD RESULTS Show by 1 items Total 24,189 items

1 2 3 4 5 ... 1613 >

ID	CODE	NAME	CLASS	CONCEPT	VALIDITY	DOMAIN	VOCAB
3003338	28540-3	MCHC [Mass/volume]	Lab Test	Standard	Valid	Measurement	LOINC
3009744	786-4	MCHC [Mass/volume] by Automated count	Lab Test	Standard	Valid	Measurement	LOINC
3051314	47279-5	MCHC [Mass/volume] in Cord blood	Lab Test	Standard	Valid	Measurement	LOINC
4076500762246-4		MCHC [Mass/volume] in Blood from Fetus by Automated count	Lab Test	Standard	Valid	Measurement	LOINC
4076253059467-1		MCHC [Moles/volume]	Lab Test	Standard	Valid	Measurement	LOINC

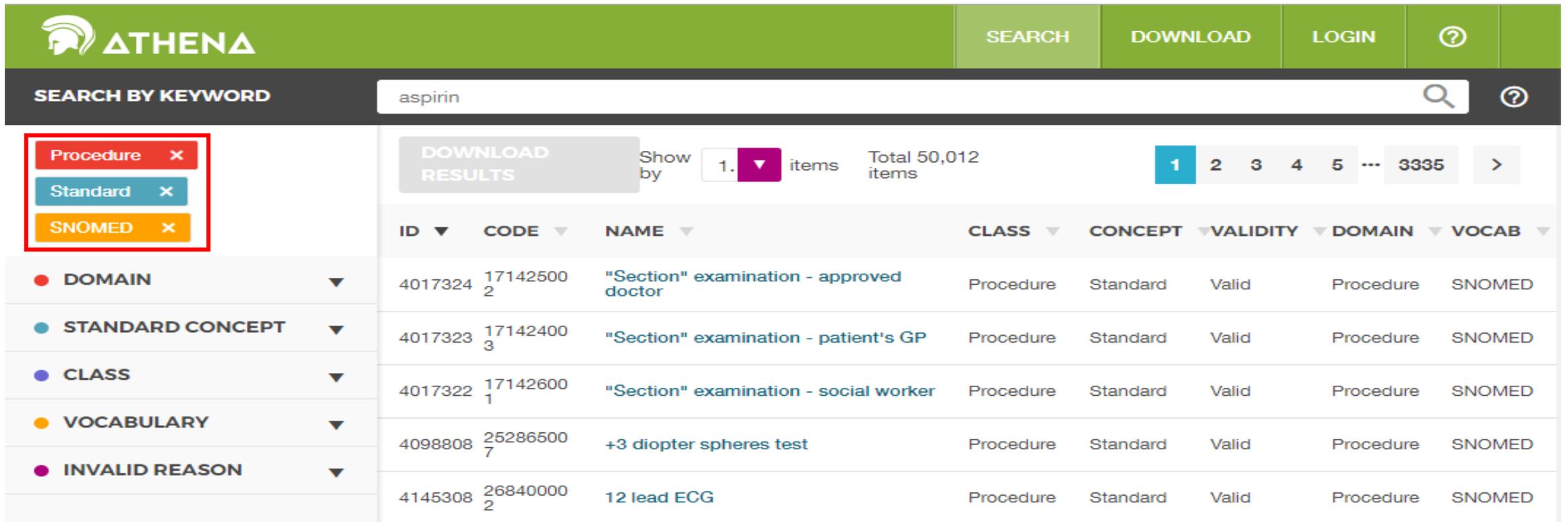
⇒ concept_id : 3009744 로 매핑

Procedure Mapping

1. <http://athena.ohdsi.org/>

2. Filter 적용

- ✓ Domain = Procedure
- ✓ Standard Concept = Standard
- ✓ Vocabulary = SNOMED



The screenshot shows the Athena OHDSI search interface. The search bar contains the keyword "aspirin". The results are filtered by Domain (Procedure), Standard Concept (Standard), and Vocabulary (SNOMED). The results table shows the following data:

ID	CODE	NAME	CLASS	CONCEPT	VALIDITY	DOMAIN	VOCAB
4017324	17142500 2	"Section" examination - approved doctor	Procedure	Standard	Valid	Procedure	SNOMED
4017323	17142400 3	"Section" examination - patient's GP	Procedure	Standard	Valid	Procedure	SNOMED
4017322	17142600 1	"Section" examination - social worker	Procedure	Standard	Valid	Procedure	SNOMED
4098808	25286500 7	+3 diopter spheres test	Procedure	Standard	Valid	Procedure	SNOMED
4145308	26840000 2	12 lead ECG	Procedure	Standard	Valid	Procedure	SNOMED

1. Segmentectomy of Lung (폐 구역 절제술)

① Athena에 procedure명 검색

The screenshot shows the Athena search interface. The search bar contains 'Segmentectomy of Lung'. The results table is as follows:

ID	CODE	NAME	CLASS	CONCEPT	VALIDITY	DOMAIN	VOCAB
4129189	23737000 ₈	Segmentectomy of breast	Procedure	Standard	Valid	Procedure	SNOMED
46270895	70888900 ₅	Robot assisted laparoscopic segmentectomy of liver	Procedure	Standard	Valid	Procedure	SNOMED
4269789	62511003	Autotransplant of lung	Procedure	Standard	Valid	Procedure	SNOMED
4067713	17317000 ₈	Bilobectomy of lung	Procedure	Standard	Valid	Procedure	SNOMED
4303062	78603008	Biopsy of lung	Procedure	Standard	Valid	Procedure	SNOMED
4307470	38774700 ₀	Cauterization of lung	Procedure	Standard	Valid	Procedure	SNOMED

적합한 concept name 없음

①-1 : 검색 단어 형태를 수정하여 검색

ex) segmentectomy
→ excision of segment

The screenshot shows the Athena search interface with the search term 'excision segment lung'. The results table is as follows:

ID	CODE	NAME	CLASS	CONCEPT	VALIDITY	DOMAIN	VOCAB
4070880	17317200 ₀	Excision of segment of lung	Procedure	Standard	Valid	Procedure	SNOMED
4030160	10814800 ₁	Anterior segment of eye excision	Procedure	Standard	Valid	Procedure	SNOMED
4194589	31463800 ₂	Excision of reversed intestinal segment	Procedure	Standard	Valid	Procedure	SNOMED
4030162	10815600 ₃	Posterior segment of eye excision	Procedure	Standard	Valid	Procedure	SNOMED

⇒ concept_id : 4070880 으로 매핑

1. Segmentectomy of Lung (폐 구역 절제술)

①-2 : broad한 concept 에서 Relationship을 이용해 child concept (subsumes) 찾아보기

segmentectomy 보다 broad 한 'lobectomy of lung' 검색 후 child concept에서 찾을 수 있다.



DETAILS	
Domain ID	Procedure
Concept Class ID	Procedure
Vocabulary ID	SNOMED ?
Concept ID	4070879
Concept code	173171007
Invalid reason	Valid
Standard concept	Standard
Synonyms	Pulmonary lobectomy Lobectomy of lung (procedure) Lobectomy of lung
Valid start	01/01/1970
Valid end	12/31/2099

Subsumes

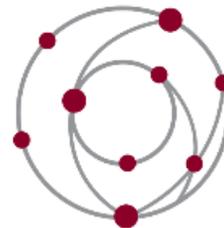
Excision of middle lobe of right lung	42537535	SNOMED
Excision of segment of lung	<u>4070880</u>	SNOMED
Lobectomy of lower lobe of left lung	37111477	SNOMED
Lobectomy of lower lobe of right lung	37111476	SNOMED
Lobectomy of lung with excision of part of adjacent lobe	4337606	SNOMED
Lobectomy of upper lobe of left lung	37111478	SNOMED
Lobectomy of upper lobe of right lung	37111479	SNOMED
Lobectomy with bronchoplastic procedure	4337605	SNOMED
Other lobectomy of lung	2001340	ICD9Proc
Partial lobectomy of lung	4231736	SNOMED

⇒concept_id
4070880
으로 매핑

감사합니다.

이정문

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KURIAS