



ML RANKING

GROUP 5

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OUR APPROACH

POINTWISE

- $f(\text{query}, \text{document})$ → *relevance score*
- results ordered by *relevance score*

STARTING POINT

A	B	C	D	E
loinc_num	long_common_name	component	system	property
1988-5	C reactive protein [Mass/volume] in Serum or Plasma	C reactive protein	Ser/Plas	MCnc
1959-6	Bicarbonate [Moles/volume] in Blood	Bicarbonate	Bld	SCnc
10331-7	Rh [Type] in Blood	Rh	Bld	Type
18998-5	Trimethoprim + Sulfamethoxazole [Susceptibility]	Trimethoprim+S	Isolate	Susc
1975-2	Bilirubin.total [Mass/volume] in Serum or Plasma	Bilirubin	Ser/Plas	MCnc

- 70 Rows x 5 Attributes
- No Label/Score

MANUAL LABELS

- Rows Labeled for each query
- Relevance on query words presence
- Binary score of 0 and 1

loinc_num	long_common_name	component	system	property	relevance
1988-5	C reactive protein [Mass/volume] in Blood	C reactive protein	Ser/Plas	MCnc	0
1959-6	Bicarbonate [Moles/volume] in Blood	Bicarbonate	Bld	SCnc	1
10331-7	Rh [Type] in Blood	Rh	Bld	Type	1
18998-5	Trimethoprim+Sulfamethoxazole [Susceptibility]	Trimethoprim+S	Isolate	Susc	0
1975-2	Bilirubin.total [Mass/volume] in Serum or Plasma	Bilirubin	Ser/Plas	MCnc	0
890-4	Blood group antibody screen [Presentation]	Blood group ant	Ser/Plas	ACnc	1
20565-8	Carbon dioxide, total [Moles/volume]	Carbon dioxide	Bld	SCnc	1
18906-8	Ciprofloxacin [Susceptibility]	Ciprofloxacin	Isolate	Susc	0
2143-6	Cortisol [Mass/volume] in Serum or Plasma	Cortisol	Ser/Plas	MCnc	0
2075-0	Chloride [Moles/volume] in Serum or Plasma	Chloride	Ser/Plas	SCnc	0
4671-4	Protein C [Mass/volume] in Plasma	Protein C	Plas	MCnc	0

MODEL

- TF-IDF score vector in each title of the documents
- Cosine similarity between the query score vector and the documents score vectors
- Considered as relevant the documents with high similarity

EVALUATION

● GLUCOSE IN BLOOD

- Threshold 0.1
- Precision 100%
- Recall 100%

		PREDICTED	
		T	F
ACTUAL	T	60	0
	F	1	6

● BILIRUBIN IN PLASMA

- Threshold 0.5
- Precision 100%
- Recall 86%

44	0
0	23

● WHITE BLOOD CELLS COUNT

- Threshold 0.1
- Precision 78%
- Recall 100%

49	4
0	14

EXTENDING DATASET

- The most complete the dataset, the most accurate the ranking
- LoincTableCore (all LOINC data) from LOINC Download folder
- More than 100.000 rows x 15 attributes
- Kept only 5 of them (loinc_num, component, property, system, long_common_name)
- Dataset joined with property and system abbr

RESULTS

● QUERY: BILIRUBIN IN PLASMA

1	loinc_num	component	property	system	long_common_name	score
2	14630-8	Bilirubin.non-glucuronidated	*Substance Concentration	Ser/Plas	Bilirubin.indirect [Moles/volume] in Serum or Plasma	0.98
3	15152-2	Bilirubin.glucuronidated	*Mass Concentration	Ser/Plas	Bilirubin.conjugated [Mass/volume] in Serum or Plasma	0.98
4	35194-0	Bilirubin	Mass or Substance	Ser/Plas	Bilirubin.total [Mass or Moles/volume] in Serum or Plasma	0.98
5	1969-5	Bilirubin renal clearance	*Volume Rate	Urine+Serum	Bilirubin.total renal clearance in 24 hour Urine and Serum or Plasma	0.98
6	29760-6	Bilirubin.glucuronidated	*Substance Concentration	Ser/Plas	Bilirubin.conjugated [Moles/volume] in Serum or Plasma	0.98
7	1970-3	Bilirubin.albumin bound	*Mass Concentration	Ser/Plas	Bilirubin.delta [Mass/volume] in Serum or Plasma	0.98
8	1971-1	Bilirubin.non-glucuronidated	*Mass Concentration	Ser/Plas	Bilirubin.indirect [Mass/volume] in Serum or Plasma	0.98
9	22665-4	Bilirubin.albumin bound	*Substance Concentration	Ser/Plas	Bilirubin.delta [Moles/volume] in Serum or Plasma	0.98
10	15153-0	Bilirubin.non-glucuronidated	*Mass Concentration	Ser/Plas	Deprecated Indirect bilirubin [Mass/volume] in Serum or Plasma	0.98
11	34543-9	Bilirubin direct & total panel	*Mass Concentration	Ser/Plas	Bilirubin direct and total panel [Mass/volume] - Serum or Plasma	0.98
12	50189-0	Neonatal bilirubin panel	*Mass Concentration	Ser/Plas	Neonatal bilirubin panel [Mass/volume] - Serum or Plasma	0.98
13	75697-3	Bilirubin fractions panel	*Substance Concentration	Ser/Plas	Bilirubin fractions panel [Moles/volume] - Serum or Plasma	0.98
14	77137-8	Bilirubin	*Substance Concentration	Ser/Plas/Blood	Bilirubin.total [Moles/volume] in Serum, Plasma or Blood	0.98
15	1975-2	Bilirubin	*Mass Concentration	Ser/Plas	Bilirubin.total [Mass/volume] in Serum or Plasma	0.98
16	14631-6	Bilirubin	*Substance Concentration	Ser/Plas	Bilirubin.total [Moles/volume] in Serum or Plasma	0.98
17	35192-4	Bilirubin.non-glucuronidated	Mass or Substance	Ser/Plas	Bilirubin.indirect [Mass or Moles/volume] in Serum or Plasma	0.98

THANK YOU

ANY QUESTIONS?