

2021 |

Averbis GmbH Pharma Text Mining Systematic Literature Research

powered by



Averbis in a nutshell

Averbis is a text analytics company specialized in Machine Learning and Natural Language Processing (NLP)

Our solution



AI assisted Machine Learning/Text Mining
Platform for Pharma



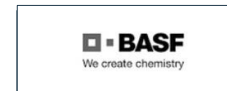
Hospitals



Healthcare Partners



Pharma



Awards



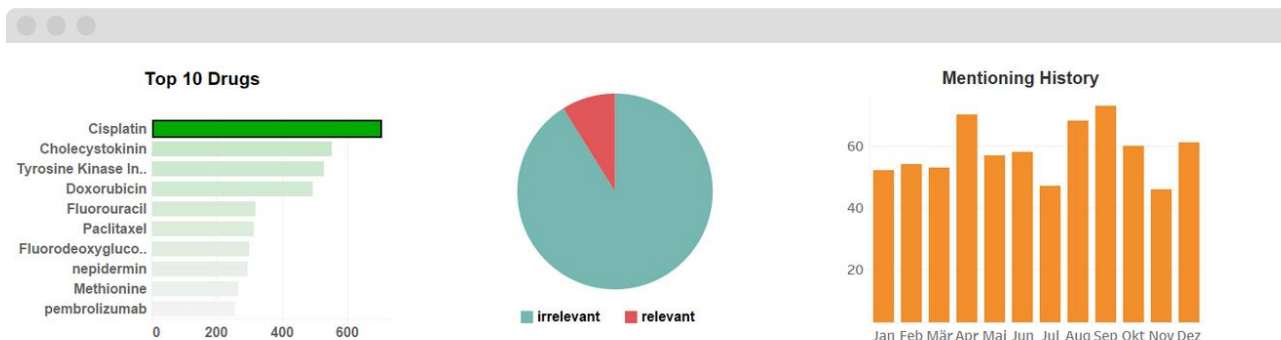
Free up your experts! Get new insights!

- State of the art AI - multilingual text mining with machine learning
- 30 most common industry standards (MedDRA, MeSH, LOINC,...)
- Adaptable to your needs
- Integration into your processes and on premise or cloud infrastructure

Myasthenia gravis induced by avelumab

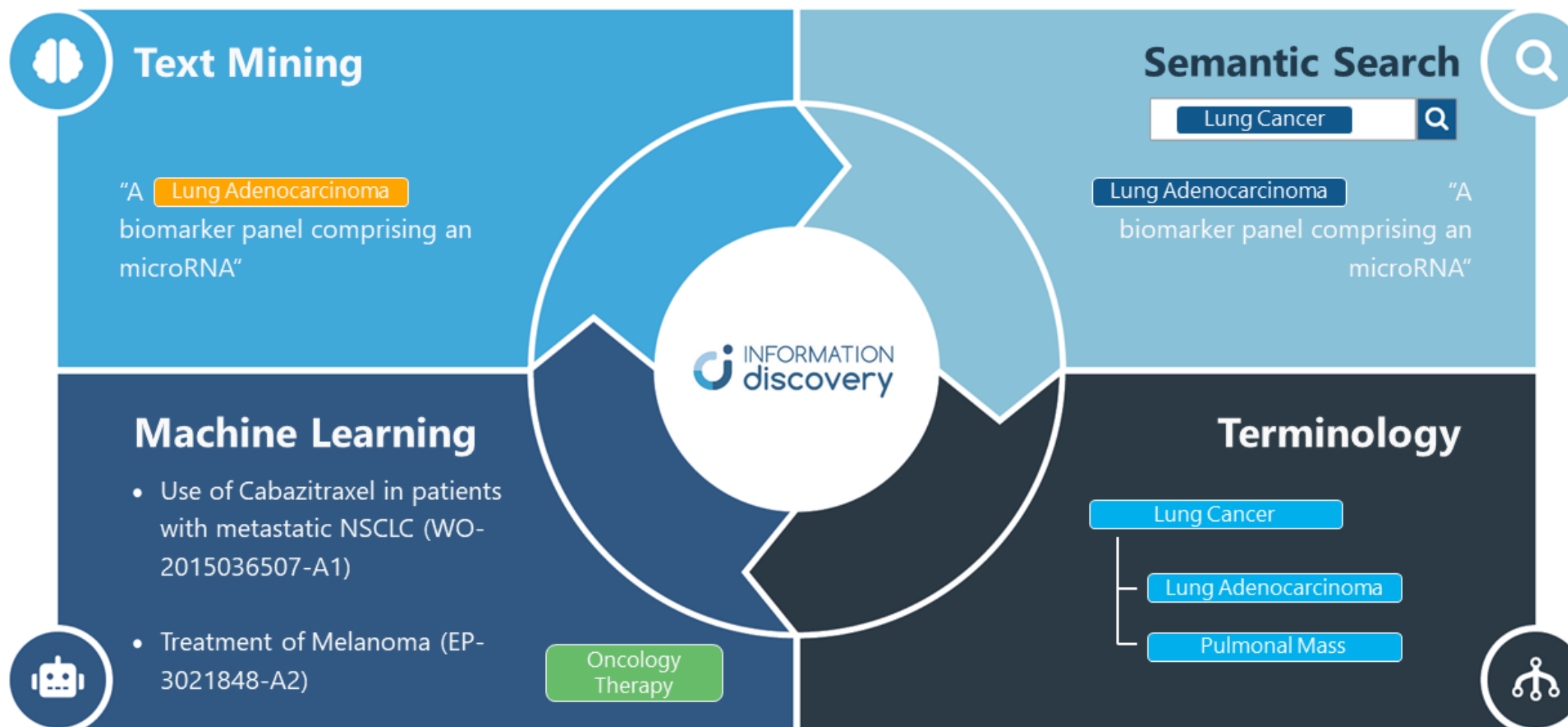
Neurological immune-related adverse events are potentially life-threatening complications of immune checkpoint inhibitors. Myasthenia gravis (MG) is a rare complication of treatment with inhibitors of programmed cell death protein 1 (PD-1) and PD ligand 1 (PD-L1). We present a patient who developed seronegative MG resulting in respiratory failure while being treated with avelumab for metastatic, treatment-refractory ovarian cancer. Her MG went into remission following steroids and maintenance

- ✓ AdverseEvent
- ✓ AdverseEventPhrase
- ✓ Anatomy
- ✓ ChemicalCompound
- ✓ Disease



Information Discovery: Detect and highlight adverse events

Information Discovery features





Averbis Pharma Use Cases

Commercial Operations / R&D

What are our Medical Liaison Managers actually talking about with KOLs? What can be found on the Web?

Medical Liaison Management
Web Monitoring

Pharmacovigilance

How do I find Adverse Events to my products out of 150 000 Pubmed articles and which ones do I have to process with Prio1?

Adverse Event Detection

Product Development

Which articles are actually relevant to our phase 3 study?

Systematic Literature
Research

We'd love to talk to you about these productive use cases!

Or about exciting new use cases!

Commercial Operations / R&D

Can we identify people from 100 000 doctors' letters who may have a rare disease?

Rare Disease Detection

Regulatory

How do we get the CoMorbidity information from our SMPC documents for submission to the EMA?

IDMP

R&D

Who actually has the most patents / studies in the field of oncology in children?

Competitor / Patent
Monitoring



Literature Classification

Literature Research in Life Sciences

Save up to 80% of your effort and get better results

Today

Using (complex) keyword queries on literature databases

- leads to many irrelevant results (~85%)
- is still not complete
- Stop wasting time on an endless amount of manual work!
- Improve accuracy!
- Make data-driven decisions!
- Focus on the interesting work only!

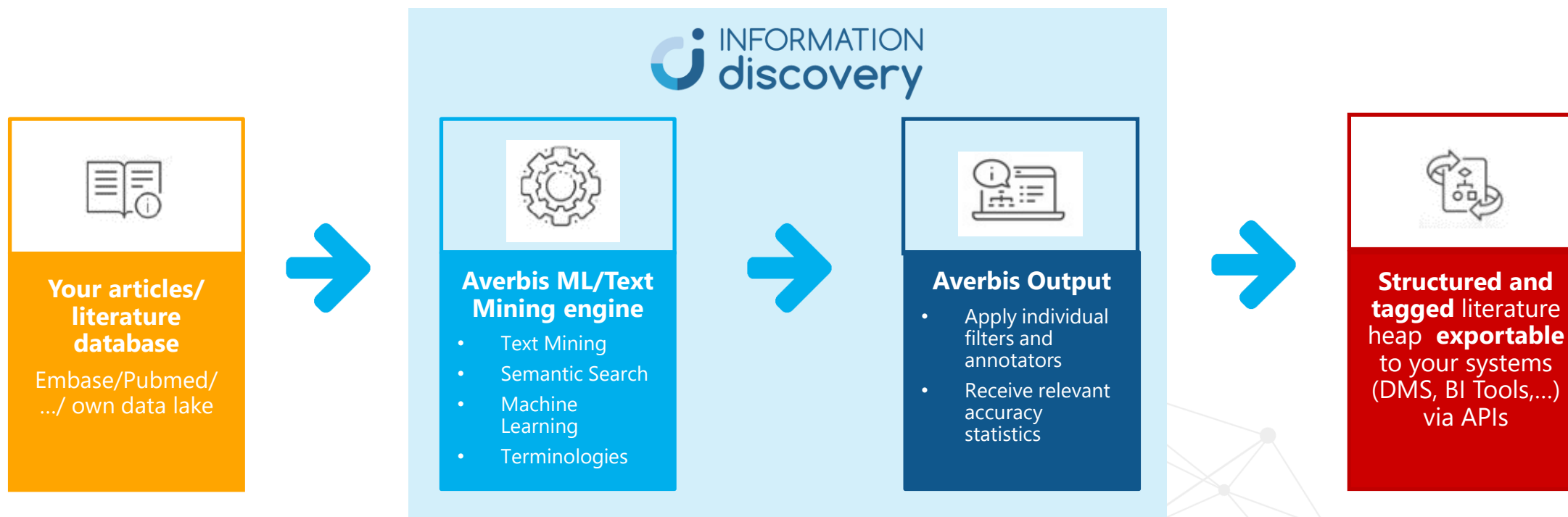
Tomorrow

Make your literature research more efficient with AI



Literature Classification in Life Sciences

What does Averbis Information Discovery do?



Classification Results

Home / My Projects / Information Discovery for Life Sciences / Classification

101 Information Discovery for Life Sciences

Classification Information Discovery for Life Sciences

4 Status: Autoclassified

1

Default

State: IDLE Model: READY

Sort by Confidence (descending) Page size 10 42 results found

Label

Confidence

Status

Anatomy

Disorder

Cardiovascular disorder 42

Atherosclerosis 6

Hypertension 5

Cerebral Stroke 4

Inflammation 4

Coronary disease 3

Diabetes mellitus 3

Chemicals & Drugs

Device

Procedures

Drug Safety: Substance

Label document(s) Classify document(s) Export search results

BMI, waist circumference, and selected cardiovascular disease risk factors among preschool-age children. 22158004

Relevant 99%

2

Obesity (Silver Spring) 20(9), 2012 (S)

Messiah SE, Arheart KL, Natale RA, Hlaing WM, Lipshultz SE, Miller TL

... and non-HDL cholesterol and low HDL cholesterol were generally associated with elevated BMI and WC in Hispanic children. TC and LDL cholesterol were not significantly ...

... circumference (WC) with CVD risk factors, including fasting triglyceride (TGL), high- and low-density lipoprotein (HDL and LDL), total cholesterol (TC), non-HDL ...

... In adults, overweight is often associated with other cardiovascular disease (CVD) risk factors. We determined whether these associations were also present ...

... non-HDL cholesterol, and C-reactive protein (CRP) in 3,644 3- to 6-year-old children included in the 1999-2008 National Health and Nutrition Examination Surveys ...

Anatomy: Cardiovascular System 2

Chemicals & Drugs: Cholesterol 5

Disorder: Body mass index increased 5

Publication Type: Journal Article

Nutritional Supplementation with Essential Amino Acids and Phytosterols May Reduce Risk for Metabolic Syndrome and Cardiovascular Disease in Overweight Adults with Mild Hyperlipidemia.

Relevant 99%

4

J Endocrinol Diabetes Obes 3(2), ()

Coker RH, Deutz NE, Schutzler S, Beggs M, Miller S, Wolfe RR, Wei J

... for physical activity. Plasma total cholesterol and LDL levels decreased in all nine volunteers (P<0.005 for cholesterol and P<0.02 for LDL). In six of these ...

... Hyperlipidemia and insulin resistance are risk factors for the development of metabolic syndrome and cardiovascular disease. We have previously observed ...

Anatomy: Blood 4

Chemicals & Drugs: Cholesterol 6

Disorder: Cardiovascular disorder 6

Publication Type: Journal Article

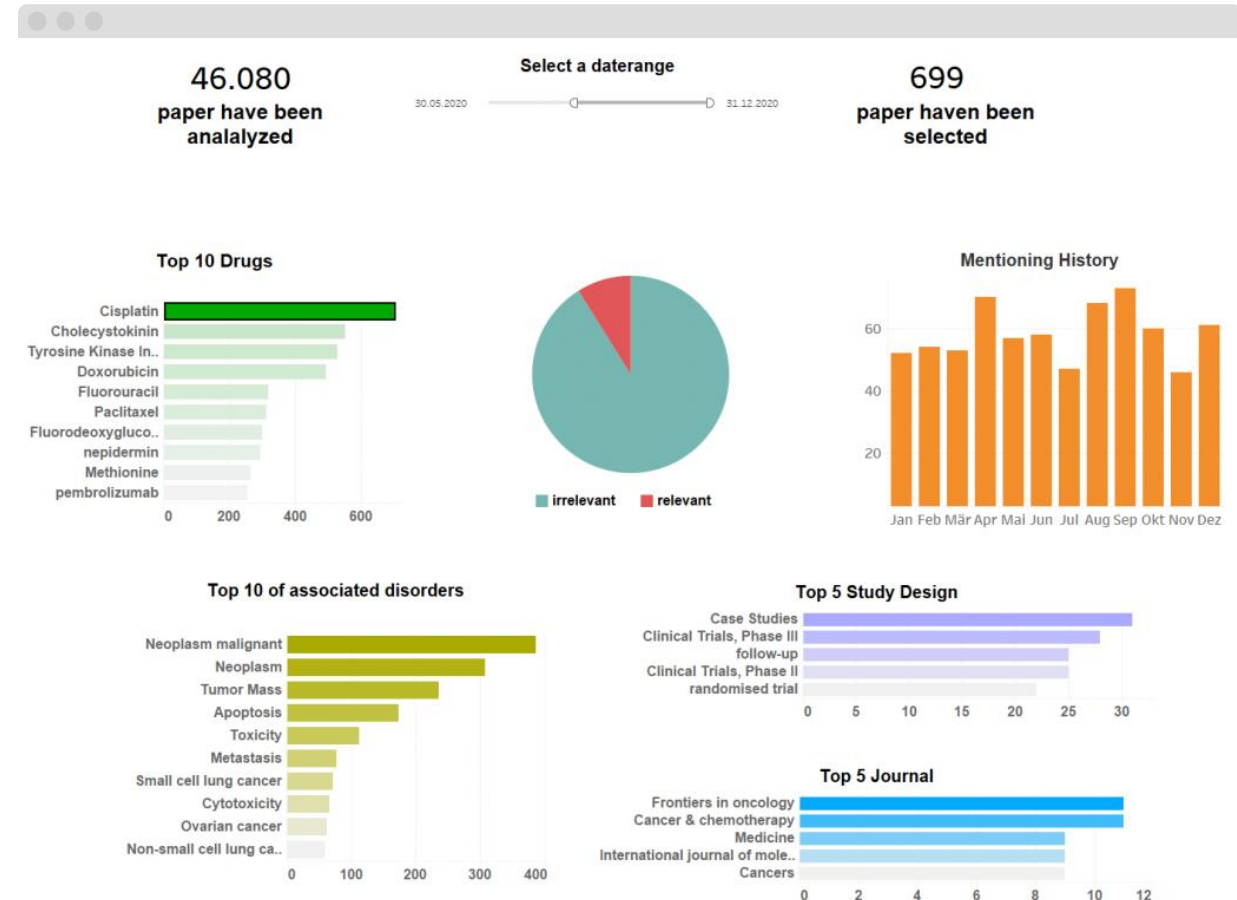
1. Auto-classification
2. Confidence values
3. Filters ready to use
4. Safety highlights

Filtering and indexing: Publications and articles get sorted into topics and relevant text is highlighted automatically (Screenshot taken from the Information Discovery dashboard)

Add Business Intelligence

With the added capabilities of data visualization through PowerBI or Tableau, you can save time while getting meaningful insights.

You can select which key metrics you want to see and get more detailed views through drill-down menus. Additionally, you can select filters, such as the time period of publications to be included in your analysis, by using the slider in the middle.



Dashboard: The interactive dashboard allows you to get a quick and complete overview of key metrics.



Systematic Literature Research

Systematic Literature Review with AI

Reduce your workload and shrink the approval timeline

Save up to 75% of time and costs!

In an industry where time to market is crucial and quality is key you want a solution that offers both. Currently SLRs are performed manually in a time and resource consuming process.

With our text mining and machine learning approach you can save time and effort with transparent and reproducible results.

An example of this can be seen in the shown results of our SLR project.



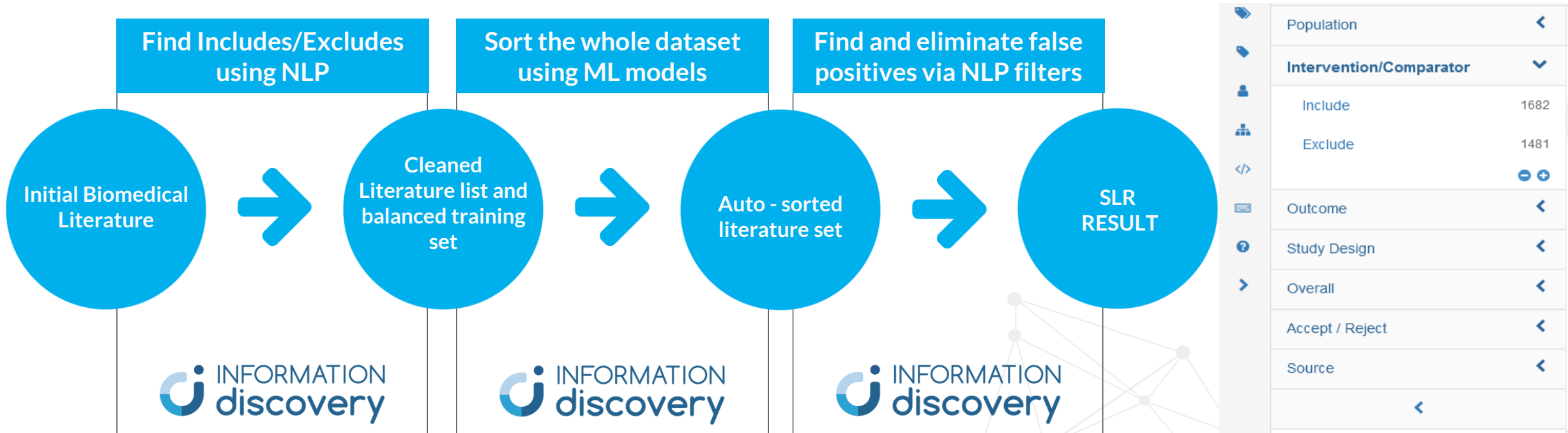
Results of the SLR project: ISPOR 2020

"A Systematic Review of Non-Small Cell Lung Cancer Clinical Trial Literature" – Luisa Queiros, Andreas Witzmann, Mateusz Bednarski, Marc Sumner, David Baehrens, Seye Abogunrin -

<https://europe2020-ispur.ipostersessions.com/Default.aspx?s=DC-D6-E5-F5-DA-F2-D0-1C-56-42-62-C6-63-9D-48-3B>

Systematic Literature Review with AI

A combined approach of Natural Language Processing (NLP) and Machine Learning (ML)



Automatic generation of rules for PICOS

Population

Adults (≥18 years) with advanced/metastatic NSCLC.
EGFR mutation +ve NSCLC (...)

Receiving second- or later lines of treatments

Intervention / Comparators

Best supportive care (BSC), Placebo

Outcome

...

Study Design

...



Home / My Projects /

Classification

Label

Confidence

Status

Population

Intervention/Comparator

Outcome

Study Design

Overall

Training: Accept / Reject

Test: Accept / Reject

Source

Population: Include

Label document(s)

Classify document(s)

Export search results

Phase 3, randomized trial (CheckMate 057) of nivolumab (NIVO) vs. Docetaxel (DOC) in advanced analyses and patient reported outcomes (PROs)

Accept 97 %

Phase 3, randomized trial (CheckMate 057) of nivolumab (NIVO) vs. Docetaxel (DOC) in advanced no analyses and patient reported outcomes (PROs) Aims: We report results from a phase 3 study of NIVO ... 4.9%/3.8% vs 14.9%/6.7% of NIVO- vs DOC-treated patients. Serious treatment-related AEs were less ... Conclusions: NIVO significantly improved OS vs DOC in patients with advanced, previously treated, nc

Journal: Oncology Research and Treatment

Population Include: Non-small cell lung cancer

Intervention / Comparator Include: nivolumab

Outcome: Patient R

Test: Accept / Reject: Accept

Reason for Exclusion:

Gefitinib versus docetaxel in previously treated advanced non-small-cell lung cancer: A meta-

Accept 96 %

Gefitinib versus docetaxel in previously treated advanced non-small-cell lung cancer: A meta-analysis ... similar OS and PFS, gefitinib showed an advantage over docetaxel in terms of objective response rate ... meta-analysis of randomized controlled trials was performed to compare the efficacy, quality of life (QoL) package. Results: Four multicenter randomized controlled trials involving 2257 patients with previous

Illustrative Design – rules are translated manually today

The future of Systematic Literature Research



Text Mining / Machine Learning
Platform

helps you to

- Automate the generation of rules for PICOS
- Significantly reduce the time of your SLR
- Get more accurate results using NLP and ML assisted classification



Let's talk about your needs!



**Interested?
Get in Touch**

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