TENWISE
Making sense of data

Leveraging your research data using TenWise's KMAP & KMINE

TenWise offers text mining solutions by providing access to its KMAP platform.

Our **KMAP platform** captures validated scientific knowledge about human genes, micro-organisms, metabolites, pathways, phenotypes, diseases, drug compounds and research workflows, in over 200 million biological relations.

"TenWise use intelligent, innovative (bio)informatics techniques, mining data to uncover hidden relationships and networks in disease areas, their expertise providing new insight in pharma research, presented in intuitive, comprehensive reports"
BioAxis Research, customer for research in role of Brown fat in metabolic disorders and obesity

"We use KMAP for several applications both internally and externally. For example, to collect information regarding selected proteins to support our customers or for prioritization of new protein targets."
Olink Proteomics, CRO in the proteomics field

DATA

Available data in texts

KMAP

> 200 million biological relations

KMINE

GOS (a) increases *F. prausnitzii* (b) produces butyrate (c) stimulates mucus production (d) alleviates mucolysis (e) decreases anti-inflammatory activity (f) attenuates intestinal inflammation (g) marker of appendicitis (h)

GOS (a), a prebiotic that can be ingested via food, is found to indirectly protect epithelial function of the gut barrier hereby potentially reducing the risk of occurrence of appendicitis (h)

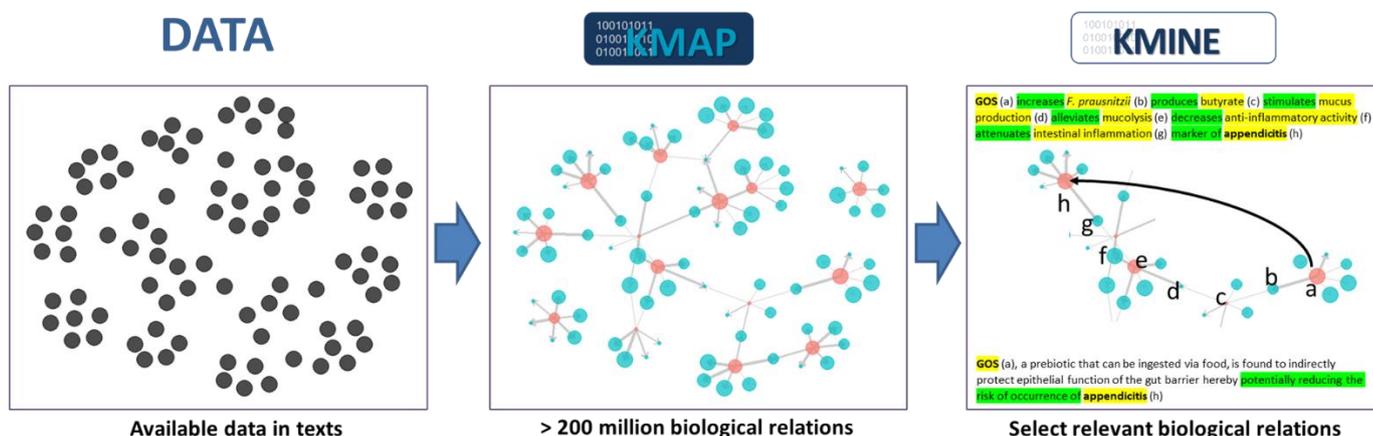Select relevant biological relations

Figure: KMAP captures scientific knowledge in over 200 million biological relations and KMINE uncovers hidden relations
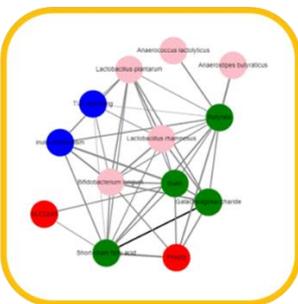
Our **KMINE products** offer access to the KMAP platform. These products are designed specifically for research teams and data engineers to assist in: **√ discovery √ drug repurposing √ literature scoping √ clinical validation**.

KMINE REST-API

Direct access to KMAP

KMINE LITERATURE EXPLORER
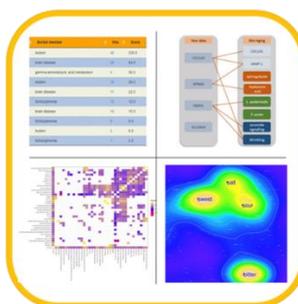
Web interface for interactive discovery

KMINE LITERATURE REPORTS

Dedicated literature reports

KMINE SCOPING REVIEW

Scoping reviews

Leveraging your research data using TenWise's KMAP & KMINE

Literature Review: Identifying potential new opportunities for microbiome therapies in CNS diseases

We used:

KMINE SCOPING REVIEW

We performed a **KMINE Scoping Review** making use of the TenWise KMAP by applying an expert curated filter with the most important Central Nervous System (CNS) diseases. Subsequently we searched with a selection of microbiome related terms to find those abstracts dealing with the selected CNS disease (eg. anxiety disorder) and the gut microbiome, i.e. the Gut-Brain Axis (GBA). An overview is depicted below that ranks (in order from large to small) the number of abstracts. We performed a full review on abstracts and full texts to retrieve GBA-related mechanism of actions for each disease.

CNS disease	Microbiome terms	Weight factor	Number of abstracts	Score	
anxiety disorder	microbiome	1	500	500	link
Alzheimer's disease	microbiome	1	309	309	link
Parkinson's disease	microbiome	1	276	276	link
autism spectrum disorder	microbiome	5	186	930	link
schizophrenia	microbiome	1	141	141	link
dementia	microbiome	0	120	0	link
bipolar disorder	microbiome	1	55	55	link
amyotrophic lateral sclerosis	microbiome	1	48	48	link
epilepsy	microbiome	0	37	0	link
mood disorder	microbiome	1	17	17	link
Huntington's disease	microbiome	0	11	0	link
eating disorder	microbiome	0	10	0	link
acute stress disorder	microbiome	0	7	0	link
Transient ischemic attack	microbiome	0	4	0	link
personality disorder	microbiome	0	3	0	link
vascular dementia	microbiome	0	3	0	link
Lewy body dementia	microbiome	0	1	0	link

Conclusions: Cause-effect relations are still largely unknown for most CNS diseases. Autisms and anxiety disorders are the earliest diseases that have been linked to the gut microbiome. The top 4 diseases showing strong indications for a GBA-related **mechanism of action**: anxiety disorder, Alzheimer's disease, Parkinson's disease and autism spectrum disorder. Potential upcoming areas within GBA (Orange) are: schizophrenia, bipolar disorder, ALS and epilepsy.

Want to know how to access KMAP? Call us or request a demonstration or quote:

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