

The Thomson / Collexis Knowledge Dashboard

powered by the Web of Science



Quick Reference Guide for the TC Alzheimer Dashboard

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Knowledge Dashboard, powered by *Web of Science*,

The Thomson Collexis Dashboard is the premier vertical search tool available today – combining the world renowned data from Web of Science with the powerful Collexis Knowledge Dashboard.

In this example, the Thomson Collexis Knowledge Dashboard (Alzheimer) populated with PubMed based data allowing the user to Explore MeSH concepts in the field Alzheimer. By browsing the thesaurus tree you can explore all concepts used in the context of Alzheimer in a more structured way. After choosing a concept you can instantly select between the most important and emerging experts, as well as publications and patents.

The Thomson Collexis Knowledge Dashboard is a software solution that enables investigators in the life sciences the ability to analyze large numbers of papers efficiently through visual data-mining techniques. The thesaurus used in the background is the 2007 version of Medical Subject Headings (MeSH).

Introduction

Thomson Collexis Dashboards (TCD) are tailored to a specific area of biomedical investigation allowing for intuitive, visual queries that bring back highly relevant results.

TCD unleashes the ability to search by knowledge concept, freeing researchers from the frustrating search-engine paradigm, and thus allowing them to make unexpected concept associations that might never emerge via standard search approaches.

1. Thought leaders, research hubs, and centers of excellence in a given research area can be identified in order to hone in on potential collaborators located across town or across the globe.
2. Discover emerging or declining trends that lend insight to current research directions and can inform decisions on the best approaches to acquiring new research funding.
3. Finally, hypothesis generation is facilitated by proactively suggesting concept relationships that have not yet appeared in the literature but are highly likely to appear in the future.

The dashboard approach is "top-down" – making it easy for researchers to whittle at an extensive list of references on a single topic (in this case Alzheimer Disease) down to specific, directly relevant articles. Users can browse and filter literature by keyword, concept, expert, journal, or location. Researchers can use the TCD to identify emerging thought leaders, top publication outlets, or research hubs -- as well as track trends and discover emerging concepts and relationships.

Definition of publications to be integrated:

By using an initial "template query," the user defines which publications should be integrated. This differs from the standard search approach in as much as the challenge is not to define a query which limits the resulting amount of publications as much as possible but to build a query which integrates every possibly relevant publication for the thematic background. For Example, if the user is interested in drugs used for treating Alzheimer Disease, then the correct query is Alzheimer Disease and all the relevant synonyms. The publications relevant to the query are then automatically integrated in the TCD for Alzheimer Disease. The drugs used for treating the Disease can subsequently be explored within the Dashboard.

These step by step instructions can be applied to any vertical and any TCD. The difference will be the actual results.

Step 1: Signing in

Go to: www.thomson.collexis.com/alzheimer

Customers can

1. Request a Trial from the home page
2. View the subject area: Alzheimer Disease
3. View number of publications available: 96,207
4. View number of experts available: 114,629

Analyze any Thomson Web of Science vertical from whatever vantage point of interest to the investigator. This can be Scientific literature reviews, biomedical expertise location or knowledge discovery all in a single dashboard.

<http://thomson.collexis.com/alzheimer/index.asp>

Knowledge Dashboard

Powered by Web of Science

Get the right information at the right place and time!

Explore instead of searching!

Analyze all publications for a disease or a drug in a sophisticated text mining application – all possible through point-n-click visual data-mining – no more search boxes!

Locate scientific expertise anywhere in the world!

Explore all expert profiles of scientists who have published on the disease or drug topic featured in a given dashboard!

Discover research trends and new knowledge!

Get a clear overview of recent trends in biomedical research as well as a window into the future of scientific investigation through a statistical analysis of currently unpublished hypotheses that will likely appear in journals in the near future!

You deep-dive add-on to WoS!

Analyze any Thomson Scientific Web of Science vertical from whatever vantage point is of interest to you, be it scientific literature review, biomedical expertise location or knowledge discovery in a single integrated dashboard!

Request a Trial

Subject: **Alzheimer's Disease**
 Publications: **96707**
 Experts: **114629**
 Release Date: 21 April 2008

Username

Password

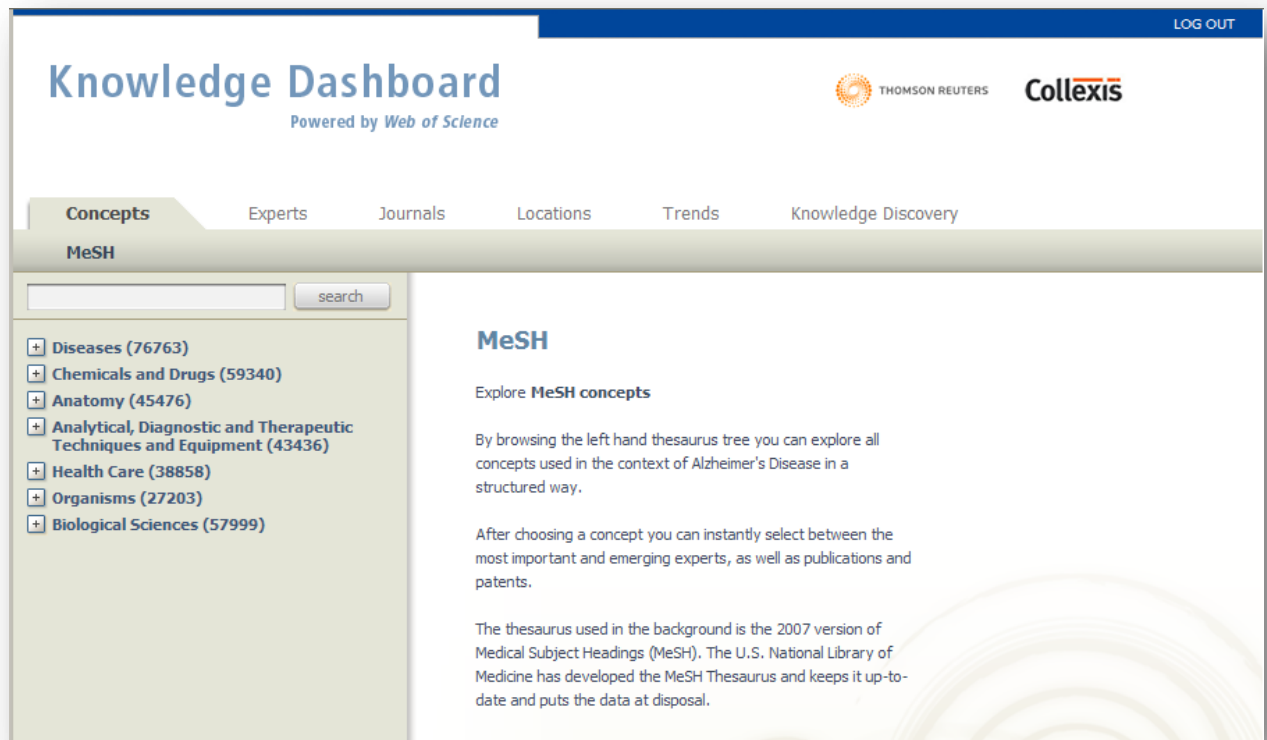
LOGIN

NEWS

> Thomson Scientific and Collexis present first joint product

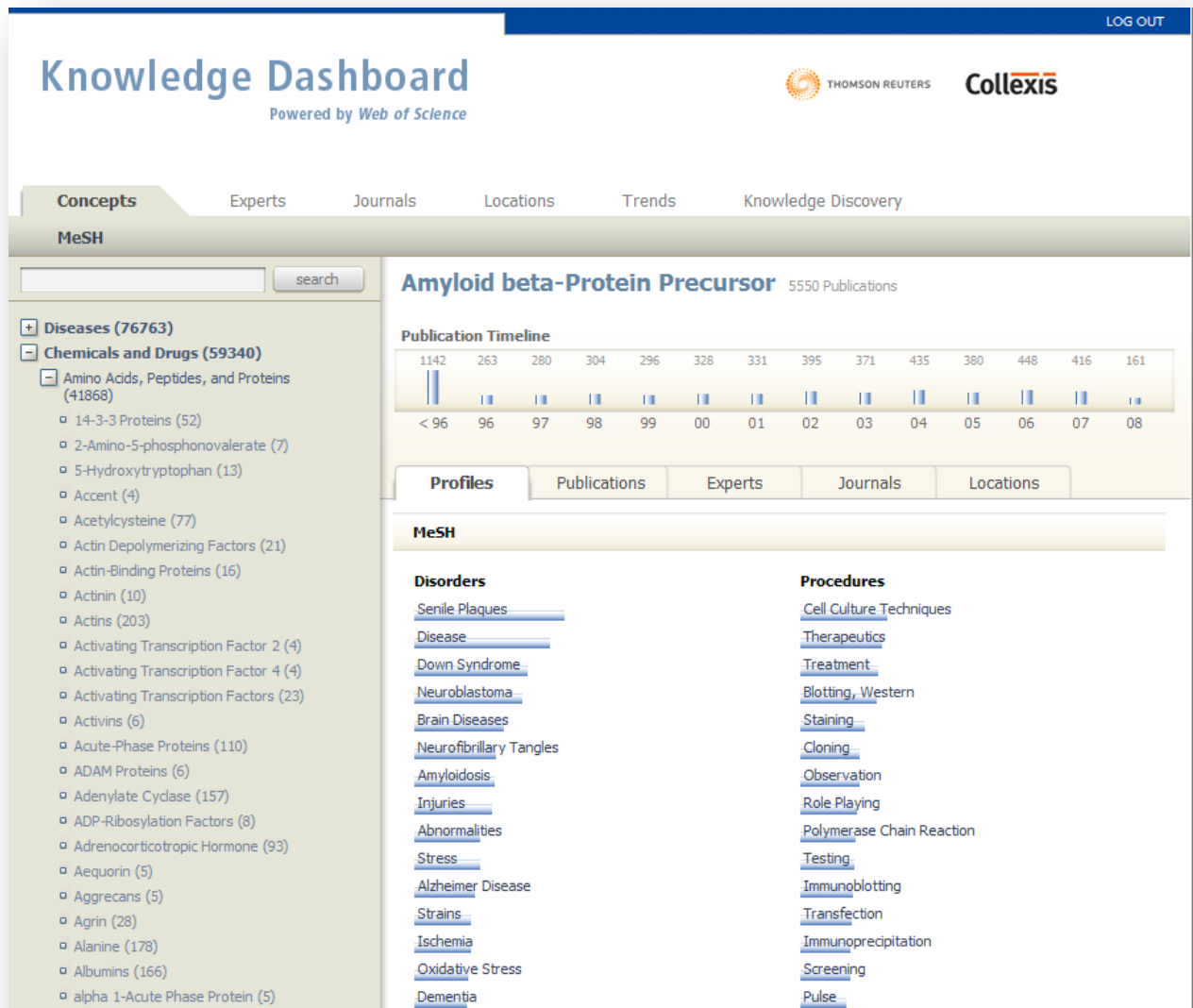
Thomson Scientific and Collexis present the first text mining solution combining the Web of Science data with the Collexis fingerprint technology. The TSI/Collexis Dashboard is a text mining tool to analyze topic areas like diseases or drugs proving expert profiles, trend information and powerful knowledge discovery functionalities.

Enter your username and password and click on the “Login” button. The following user interface will appear:



Step 2: Browse through publications in the field of Alzheimer Disease by using the Mesh or Chemical thesaurus.

Use the Mesh tree-structure you see in the screenshot below to explore all publications in the field of Alzheimer Disease and Amyloid beta-Protein Precursor by doing the following: Open the tree-structure by clicking on “chemicals and drugs” (59,340 articles) then click on “Amino Acids, Peptides, and Proteins” (41,868 articles), lookup Amyloid beta-Protein Precursor (5,550 articles) and click on that. The following screen will pop-up:



You will see that 5,550 publications on Alzheimer Disease and Amyloid beta-Protein Precursor are found and you immediately can go in “depth” by clicking on the blue highlighted relevant biomedical concepts that appear within the publications on Alzheimer Disease and Amyloid beta-Protein Precursor.

The most relevant concepts are on top. E.g.: In this case, the most relevant concept found in the field of Disorders is “Senile Plaques”. You also see a timeline of publications, showing the number of publications published on Alzheimer Disease and Amyloid beta Protein Precursor in each year.

Clicking on “Publications” will open a new screen for you which will show you all 5,550 publications found on Alzheimer Disease and Amyloid beta-Protein Precursor. The following screen will appear:

Knowledge Dashboard
Powered by Web of Science

LOG OUT

THOMSON REUTERS | Collexis

Concepts | Experts | Journals | Locations | Trends | Knowledge Discovery

MeSH

search

Amyloid beta-Protein Precursor 5550 Publications

Publication Timeline

Year	Citations
< 96	1142
96	263
97	280
98	304
99	296
00	328
01	331
02	395
03	371
04	435
05	380
06	448
07	416
08	161

Profiles | **Publications** | Experts | Journals | Locations

☐ Select All | ☒ Save to Endnote | sort by Citation | Citations

- GOATE A; CHARTIERHARLIN MC; MULLAN M; BROWN J; CRAWFORD F; FIDANI L; GIUFFRA L; HAYNES A; IRVING N; JAMES L; MANT R; NEWTON P; ROOKE K; ROQUES P; TALBOT C; PERICAKVANCE M; ROSES A; WILLIAMSON R; ROSSOR M; OWEN M; HARDY J
SEGREGATION OF A MISSENSE MUTATION IN THE AMYLOID PRECURSOR PROTEIN GENE WITH FAMILIAL ALZHEIMERS-DISEASE
NATURE 1991;349:704-706.
WoS Record 2209
- Selkoe DJ
Alzheimer's disease: Genes, proteins, and therapy
PHYSIOLOGICAL REVIEWS 2001;81:741-766.
WoS Record 1394
- GAMES D; ADAMS D; ALESSANDRINI R; BARBOUR R; BERTHELETTE P; BLACKWELL C; CARR T; CLEMENS J; DONALDSON T; GILLESPIE F; GUIDO T; HAGOPIAN S; JOHNSONWOOD K; KHAN K; LEE M; LEIBOWITZ P; LIEBERBURG I; LITTLE S; MASLIAH E; MCCONLOGUE L; MONTOYAZAVALA M; MUCKE L; PAGANINI L; PENNIMAN E; POWER M; SCHENK D; SEUBERT P; SNYDER B; SORIANO F; TAN H; VITALE J; WADSWORTH S; WOLOZIN B; ZHAO J
ALZHEIMER-TYPE NEUROPATHOLOGY IN TRANSGENIC MICE OVEREXPRESSING V717F BETA-AMYLOID PRECURSOR PROTEIN
NATURE 1995;373:523-527.
WoS Record 1338

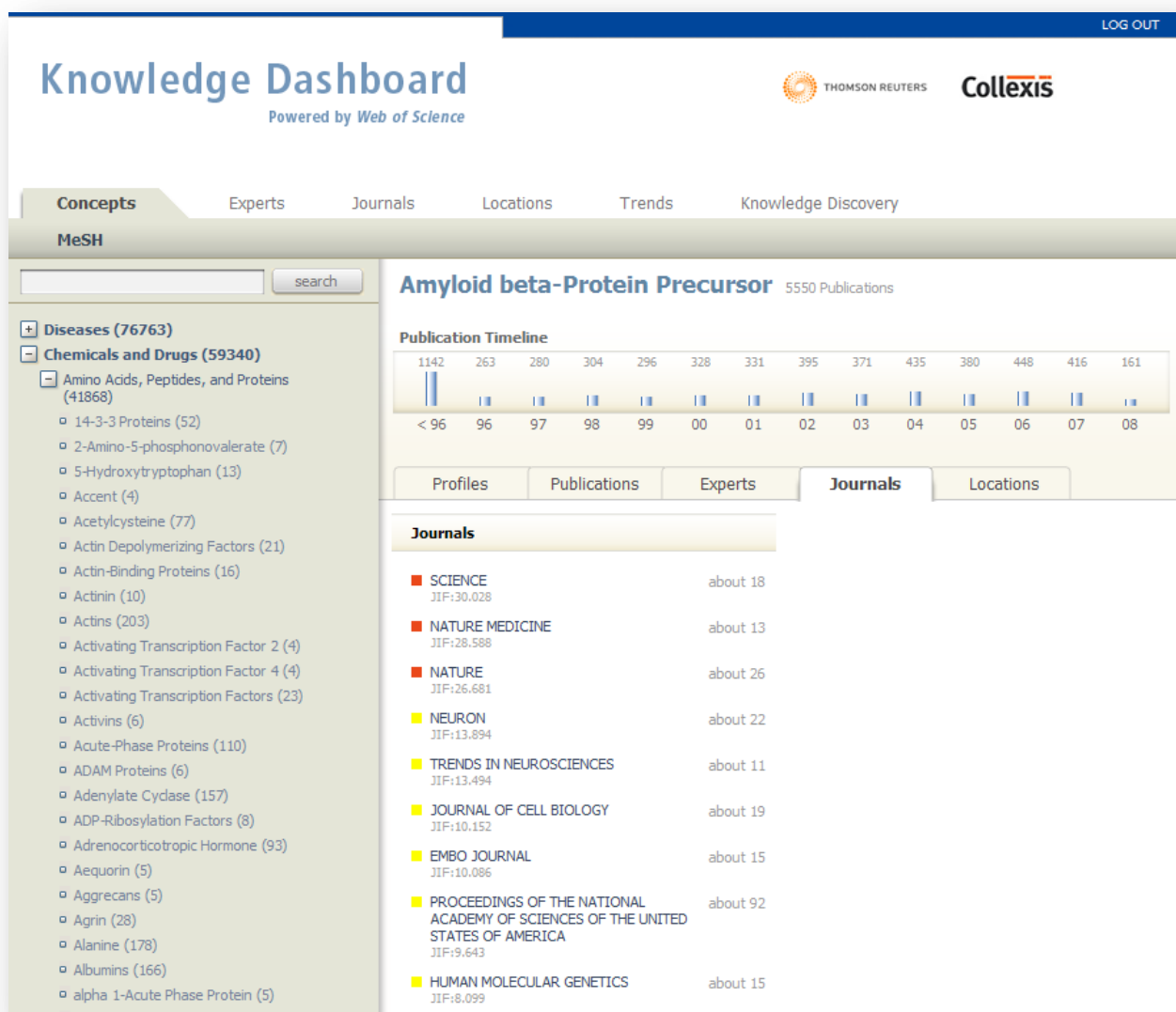
Here you can:

1. Select all publications
2. Save to Endnote
3. Sort by Citation/date
4. View Publication by Year and total number of citations
5. View journals and the WoS record

Step 3: Filtering:

You can filter these publications by journals and/or publication type by clicking on the “journals” tab in the top of the screen. The following screen will appear:

In this screen you are able to filter through these publications “journals” by clicking on a specific journal . The color coding indicates whether the journal has a high (red), middle (yellow) or low (green) journal impact factor



Step 4: Looking for experts

In addition to browsing through relevant publications in the field of Alzheimer Disease, the Thomson Collexis Dashboard can provide you with the most relevant experts in various areas of Alzheimer Disease. You can return to the starting point by clicking the “concepts” button. And by clicking on the “expert” button the following screen will appear.

The screenshot displays the Thomson Collexis Knowledge Dashboard interface. The top navigation bar includes 'LOG OUT' and the Thomson Reuters Collexis logo. The main header reads 'Knowledge Dashboard Powered by Web of Science'. Below this, a tabbed interface shows 'Concepts', 'Experts', 'Journals', 'Locations', 'Trends', and 'Knowledge Discovery'. The 'Concepts' tab is active, showing a search bar and a list of categories under 'MeSH', including 'Diseases (76763)' and 'Chemicals and Drugs (59340)'. The 'Experts' tab is selected, displaying a 'Publication Timeline' for 'Amyloid beta-Protein Precursor' (5550 Publications). The timeline shows a distribution of publications from 1996 to 2008. Below the timeline, three columns of expert profiles are shown: 'Currently active Experts', 'Experts > 290 publications', and 'All Experts'. Each column lists experts with their names, publication counts, and citation metrics.

Currently active Experts	Experts > 290 publications	All Experts
Hyman B about 365 Times Cited: 18864 Average Times Cited: 51.682	Hyman B about 51 Times Cited: 18864 Average Times Cited: 51.682	Hyman B about 51 Times Cited: 18864 Average Times Cited: 51.682
Mucke L about 72 Times Cited: 5861 Average Times Cited: 81.403	Beyreuther K about 50 Times Cited: 25231 Average Times Cited: 71.073	Beyreuther K about 50 Times Cited: 25231 Average Times Cited: 71.073
Masliah E about 324 Times Cited: 18636 Average Times Cited: 57.519	Masters C about 54 Times Cited: 22768 Average Times Cited: 59.759	De Strooper B about 36 Times Cited: 6044 Average Times Cited: 69.471
Lahiri D about 140 Times Cited: 2340 Average Times Cited: 16.714	Selkoe D about 40 Times Cited: 40100 Average Times Cited: 129.355	Masters C about 54 Times Cited: 22768 Average Times Cited: 59.759
Suzuki T about 89 Times Cited: 2408 Average Times Cited: 27.056	Masliah E about 32 Times Cited: 18636 Average Times Cited: 57.519	Suh Y about 107 Times Cited: 1316 Average Times Cited: 12.299
Youdim M about 90 Times Cited: 3348 Average Times Cited: 37.2	Lee J about 35 Times Cited: 5951 Average Times Cited: 16.127	Selkoe D about 40 Times Cited: 40100 Average Times Cited: 129.355
Selkoe D about 310 Times Cited: 5326	Kim S about 320 Times Cited: 5326	Masliah E about 324 Times Cited: 18636

At this point, you can either browse through experts in the field of Alzheimer Disease by using the left hand tree structure or search for experts by name simply by clicking the “search by name” button and typing in the name of the expert you are looking for. The Thomson Collaxis Dashboard includes tabs for 3 kinds of experts:

1. Currently Active Experts
2. Experts with Publications greater than 290
3. All Experts

The screenshot displays the 'Knowledge Dashboard' interface, powered by Web of Science. The dashboard features a top navigation bar with 'LOG OUT' and logos for Thomson Reuters and Collaxis. Below this is a secondary navigation bar with tabs for 'Concepts', 'Experts' (selected), 'Journals', 'Locations', 'Trends', and 'Knowledge Discovery'. Under the 'Experts' tab, there are sub-tabs: 'Experts by Times Cited' (selected), 'Emerging Experts', '> 120 Publications', '> 290 Publications', and 'All Experts'. The left sidebar contains a search bar and a list of experts with their names and 'Times Cited' counts. The main content area is titled 'Experts by Times Cited' and includes a sub-header 'Explore experts who are working.' and a paragraph explaining that users can select between experts who have published more than 1 paper.

Knowledge Dashboard
Powered by Web of Science

LOG OUT

THOMSON REUTERS Collaxis

Concepts **Experts** Journals Locations Trends Knowledge Discovery

Experts by Times Cited | Emerging Experts | > 120 Publications | > 290 Publications | All Experts

search

o Selkoe D - Times Cited: 40100
o Beyreuther K - Times Cited: 25231
o Roses A - Times Cited: 24500
o Mattson M - Times Cited: 23704
o Hardy J - Times Cited: 23046
o Masters C - Times Cited: 22768
o Lee V - Times Cited: 21341
o Tanzi R - Times Cited: 21144
o Trojanowski J - Times Cited: 20190
o Morris J - Times Cited: 19938
o PericakVance M - Times Cited: 19511
o Hyman B - Times Cited: 18864
o Masliah E - Times Cited: 18636
o Saunders A - Times Cited: 17098
o Smith M - Times Cited: 16904
o Cummings J - Times Cited: 16498
o Perry G - Times Cited: 16293
o Cotman C - Times Cited: 16198
o Dickson D - Times Cited: 15995
o Goedert M - Times Cited: 15974
o Lieberburg I - Times Cited: 15863
o Winblad B - Times Cited: 15157
o Younkin S - Times Cited: 15028
o McGeer P - Times Cited: 14108
o Price D - Times Cited: 13735
o Petersen R - Times Cited: 13588
o Strittmatter W - Times Cited: 13180
o Thal L - Times Cited: 13159
o Mayeux R - Times Cited: 13081
o Schmechel D - Times Cited: 12999

Experts by Times Cited

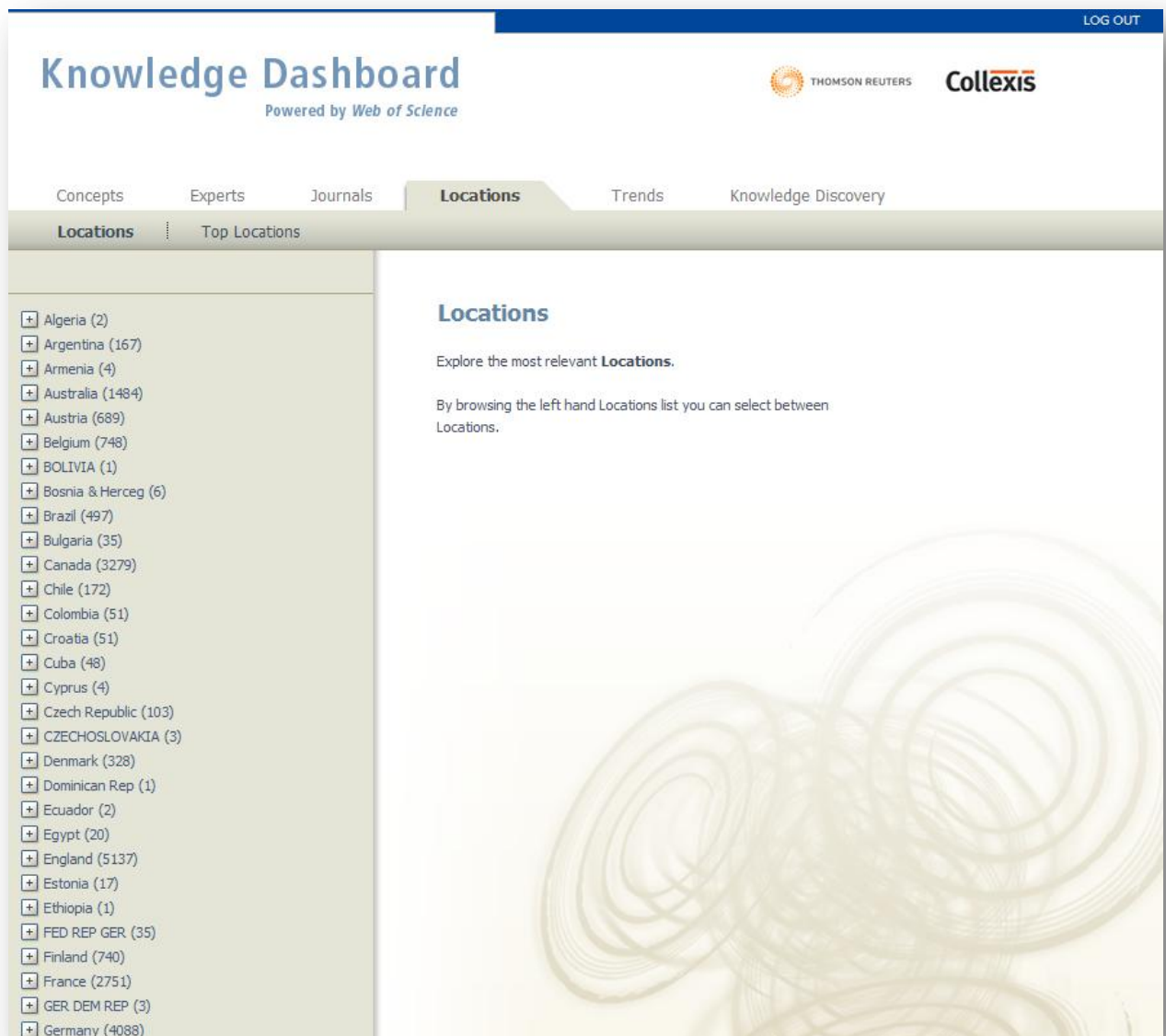
Explore **experts who are working.**

By browsing the left hand thesaurus tree you can select between experts who have published more than 1 paper.

Step 5: Locations

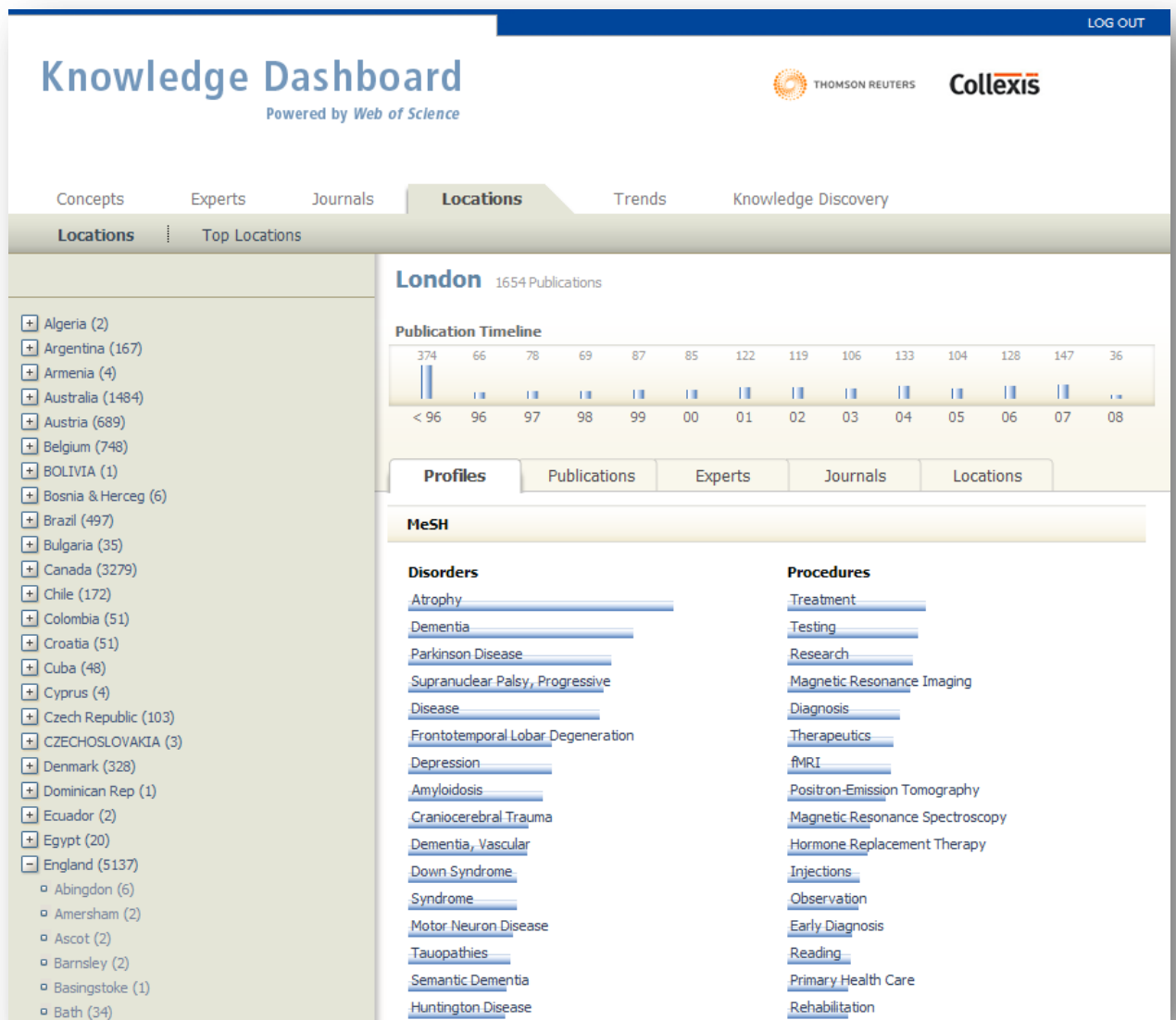
If your interest is in a geographical locations where research on Alzheimer Disease is being conducted and you wish to conduct an international study or find experts in Alzheimer Disease research via a certain country, state or city, the “Locations” functionality of the TC Alzheimer Disease Dashboard will be very useful to you.

Return to the “starting point” by clicking the “Concepts” button. Click on the “Locations” button in the left of your screen and the following screen will appear.



You can see all countries where research on Alzheimer Disease is being conducted and the number of publications that have been published in these countries. You are able to drill down research locations from country to city by using the tree structure on the left side of the screen. It is possible to look at the locations either in alphabetic order (as in the screen above) or requested them by the number of publications that have been published (click on “Top Locations” in the top of the screen).

You can see the Cities found in the affiliation of the publications

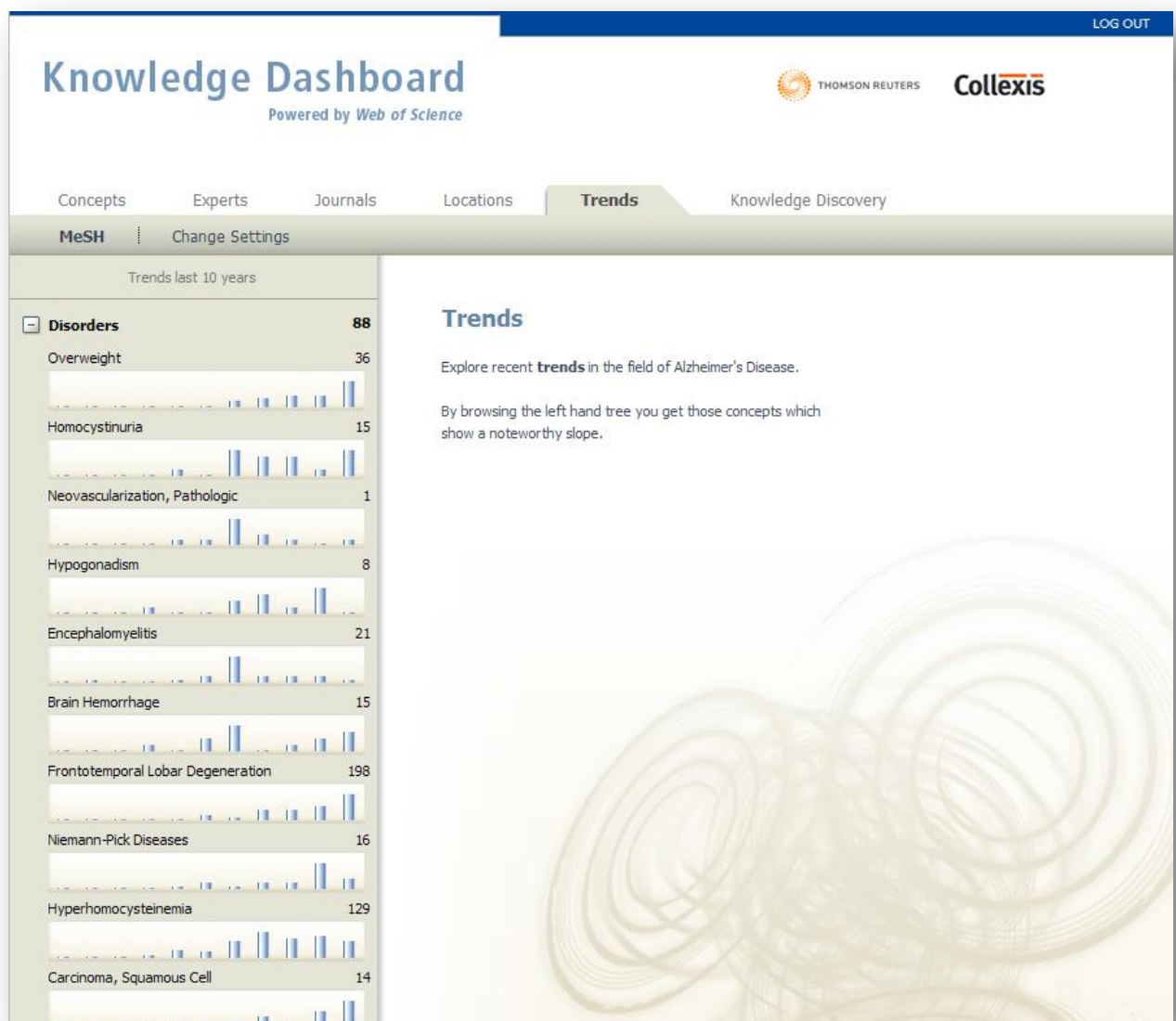


Step 6: Trends

By using statistical routines, the TCD is able to present you with biomedical concepts which are increasingly mentioned together with Alzheimer Disease. This functionality of the Dashboard allows you to uncover new trends that may have previously been undetected.

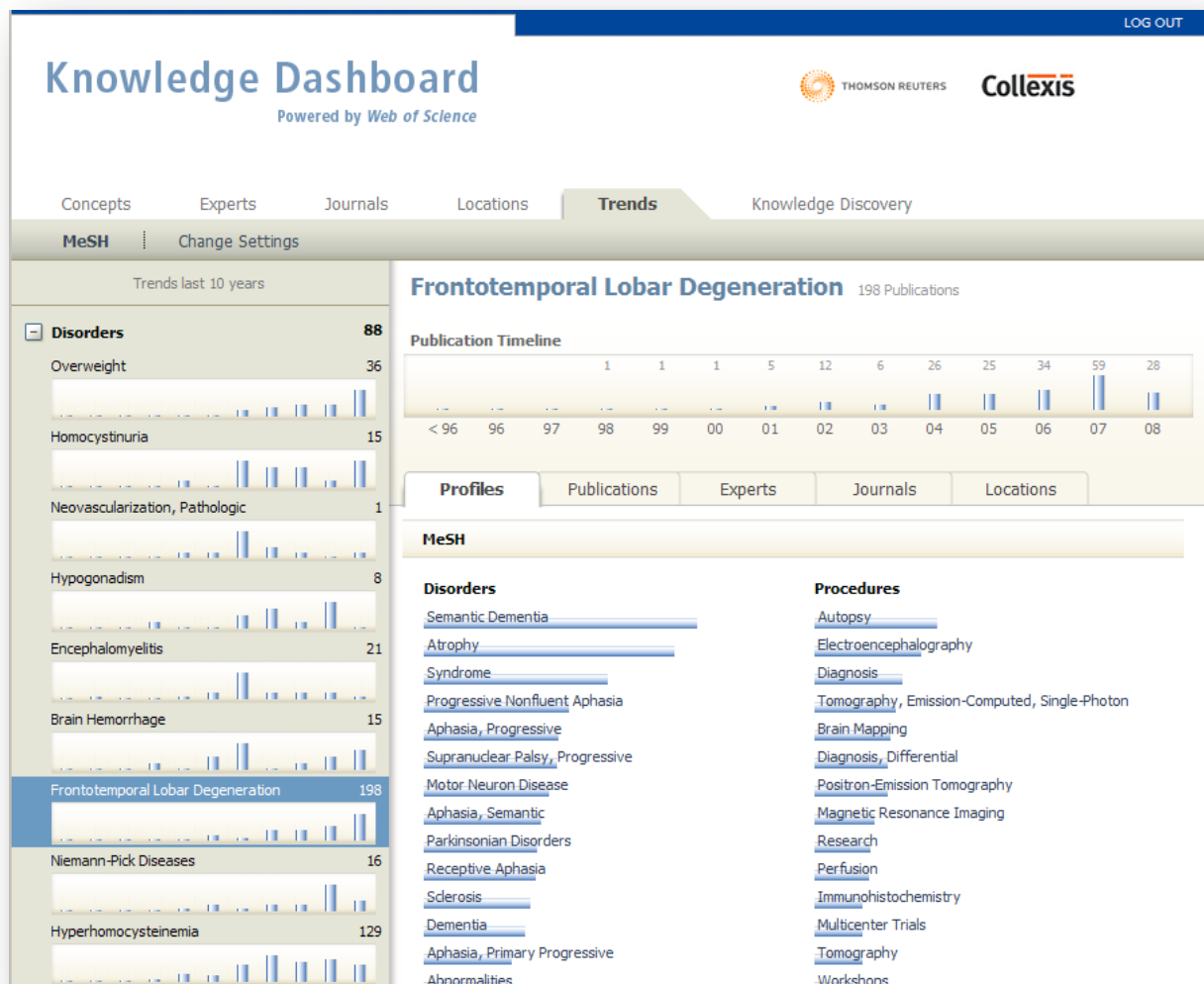
Return to the starting point by clicking the “Concepts” button. Click on the “trends. In the following screen you are able to look at trends in the field of disorders, Chemicals & drugs, Anatomy, or physiology and procedures

Click on “Disorders” and a screen which shows you the disorders that are increasingly mentioned in relation to Alzheimer Disease in the last 10 years will open.



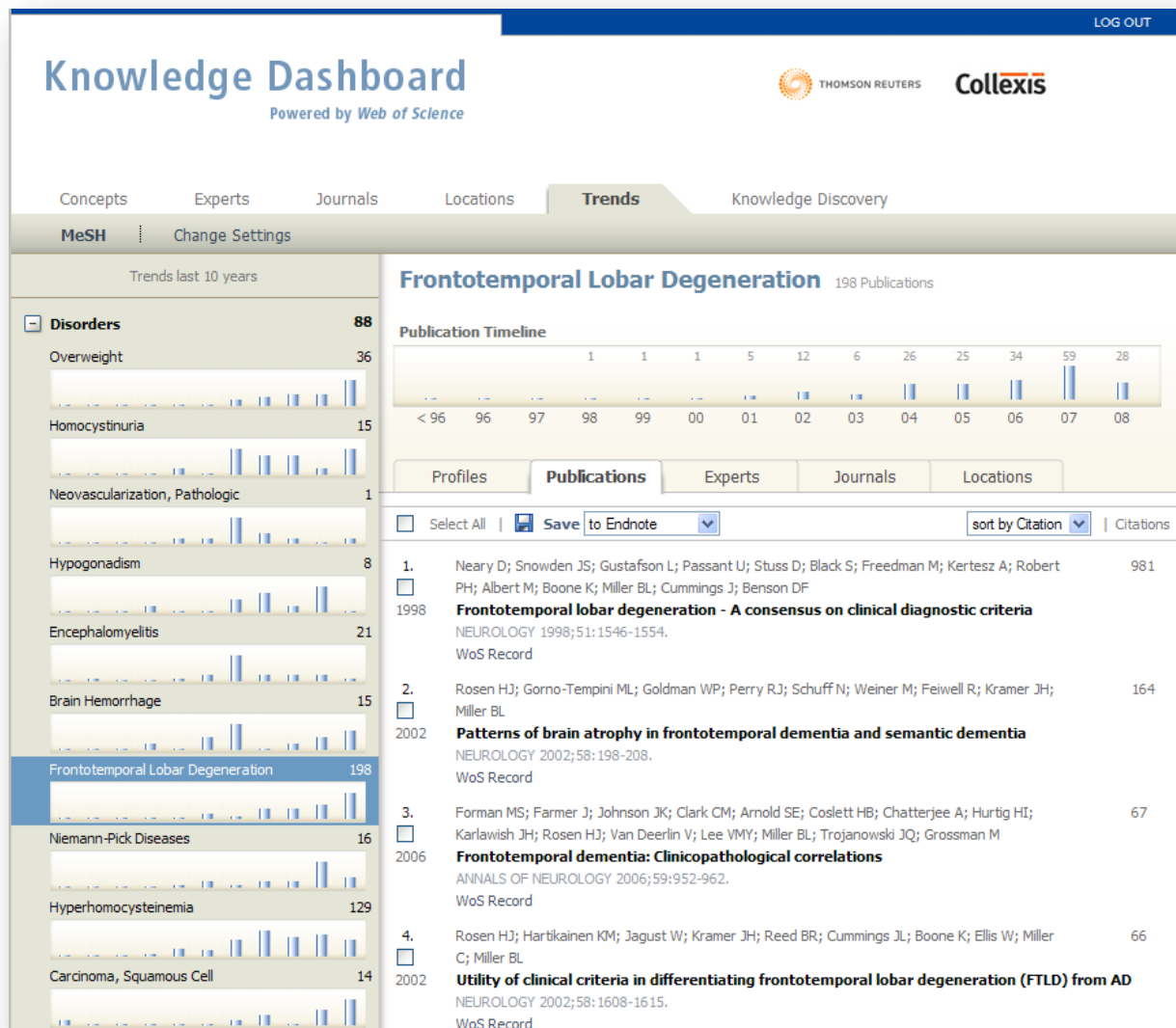
In the screen above you are able to see the trends in the area of disorders and Alzheimer Disease. Behind every Disease you will see a number. This number indicates the number of publications in which Alzheimer Disease and this specific disorder has co-occurred.

Clicking on a specific disorder, e.g. Lobar Degeneration will show you the following screen:



Like mentioned earlier in this demo script, you can go in “depth” by clicking on the blue highlighted relevant biomedical concepts that were found within the publications on Alzheimer Disease and Lobar Degeneration.

Clicking on the “Publications” button in top of the screen will get you to the 198 publications found on Alzheimer Disease and frontotemporal Lobar Degeneration.



Step 7: Knowledge Discovery

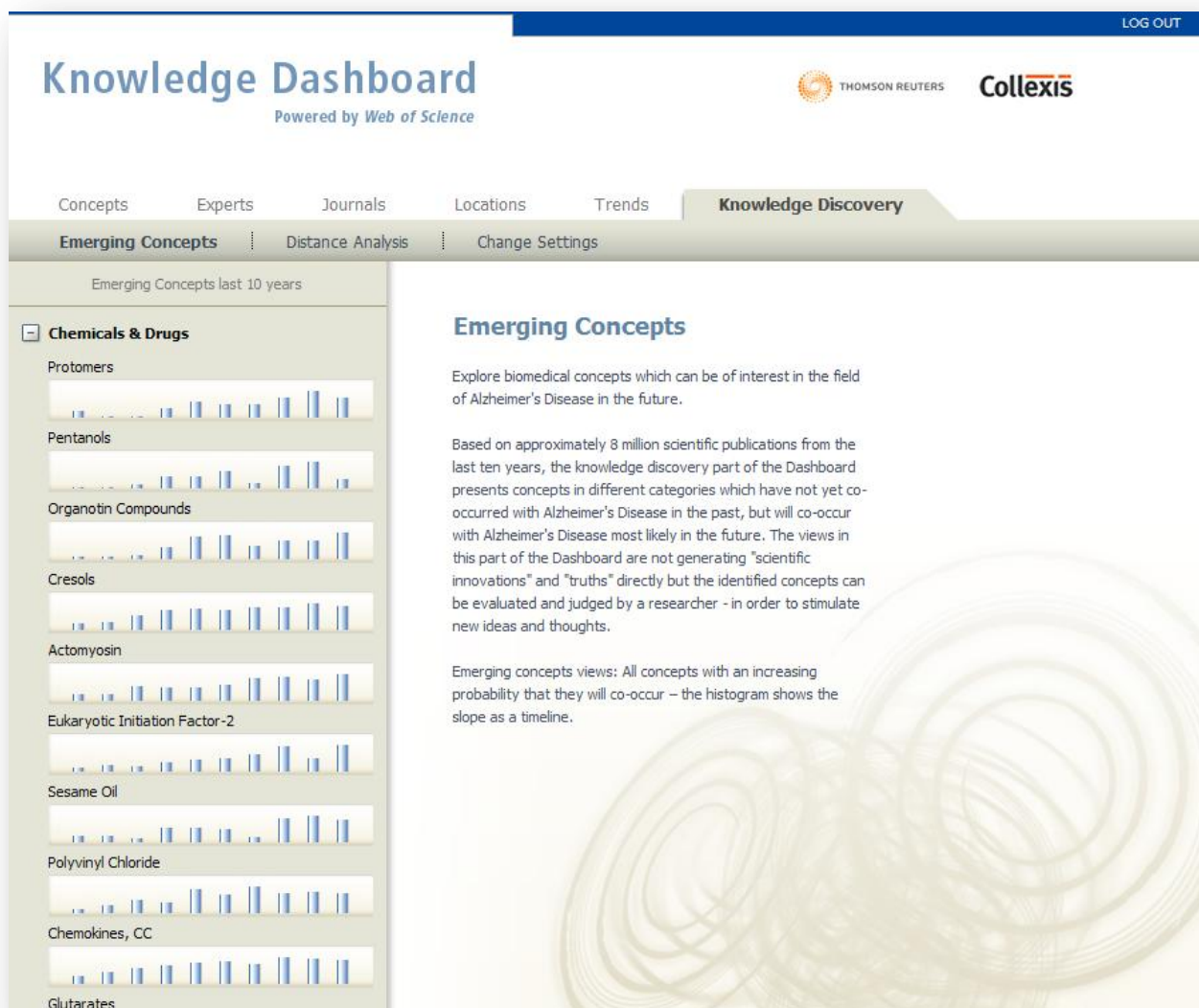
Based on the computational analysis of more than 8 million publications, a vector space model is used to identify concepts which have not been mentioned together with Alzheimer Disease in the past but might be relevant for the future. These views are not meant to provide the “immediate truth” but, rather, are meant to identify potential links and relations which can be verified by a domain expert during the hypothesis-formulation process.

Return to the starting point. Click on the “Knowledge Discovery” button. The following screen will appear.



By clicking on “Chemicals & Drugs” or “Disorders”, you are able to explore biomedical concepts which may possibly co-occur with Alzheimer Disease in the future.

Clicking “Chemicals & Drugs” will result in the following screen:



Distance Analysis, explores which concepts are relevant for the dashboard topic?

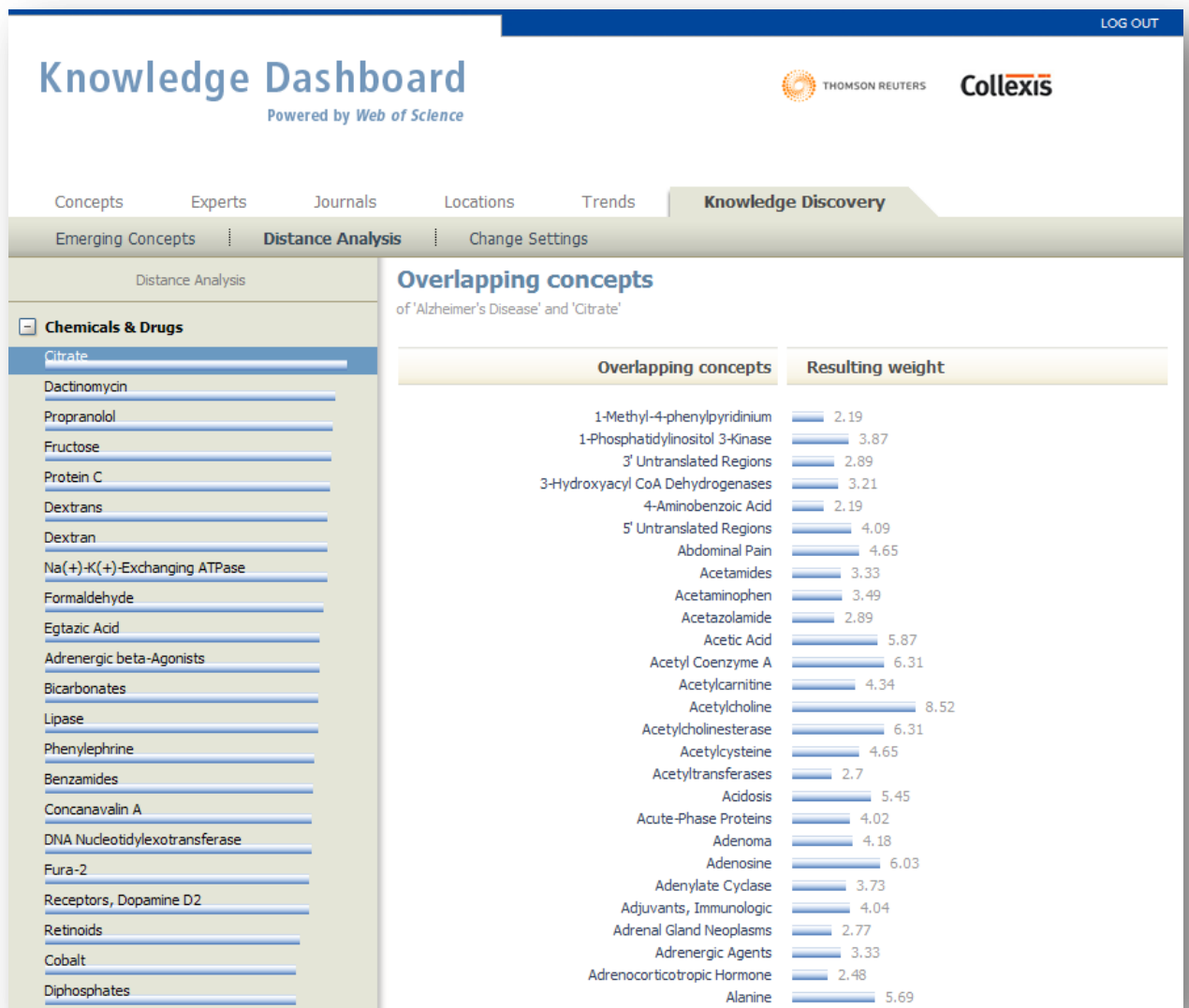
The screenshot displays the 'Knowledge Dashboard' interface, powered by Web of Science. The top navigation bar includes 'Concepts', 'Experts', 'Journals', 'Locations', 'Trends', and 'Knowledge Discovery' (which is highlighted). Below this, a sub-navigation bar shows 'Emerging Concepts', 'Distance Analysis' (selected), and 'Change Settings'. The left sidebar, titled 'Distance Analysis', contains two expandable categories: 'Chemicals & Drugs' and 'Disorders'. The main content area is titled 'Distance Analysis' and contains the following text:

Explore biomedical concepts which can be of interest in the field of Alzheimer's Disease in the future.

Based on approximately 8 million scientific publications from the last ten years, the knowledge discovery part of the Dashboard presents concepts in different categories which have not yet co-occurred with Alzheimer's Disease in the past, but will co-occur with Alzheimer's Disease most likely in the future. The views in this part of the Dashboard are not generating "scientific innovations" and "truths" directly but the identified concepts can be evaluated and judged by a researcher - in order to stimulate new ideas and thoughts.

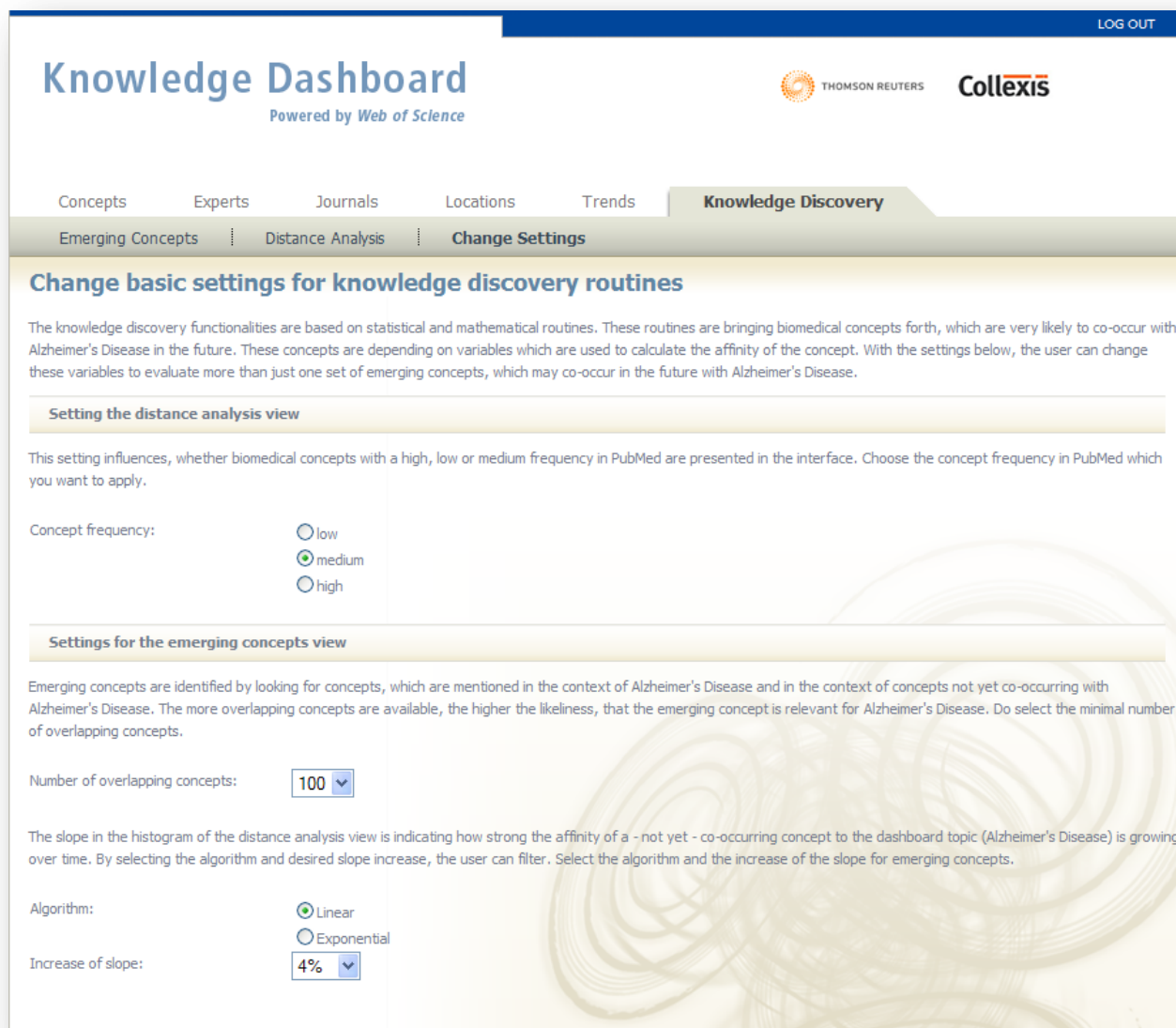
Distance Analysis view: which concepts are most relevant for the Dashboard topic?

Change basis settings for knowledge discovery routines



The knowledge discovery functionalities are based on statistical and mathematical routines. These routines are bringing biomedical concepts forth, which are likely to co-occur with Alzheimer Disease in the future. These concepts are depending on variables which are used to calculate the affinity of the concept.

With the settings below, the user can change the variables to evaluate more than just one set of emerging concepts, which may co-occur in the future with Alzheimer Disease.



Knowledge Dashboard
Powered by Web of Science

THOMSON REUTERS Collexis

LOG OUT

Concepts Experts Journals Locations Trends **Knowledge Discovery**

Emerging Concepts Distance Analysis **Change Settings**

Change basic settings for knowledge discovery routines

The knowledge discovery functionalities are based on statistical and mathematical routines. These routines are bringing biomedical concepts forth, which are very likely to co-occur with Alzheimer's Disease in the future. These concepts are depending on variables which are used to calculate the affinity of the concept. With the settings below, the user can change these variables to evaluate more than just one set of emerging concepts, which may co-occur in the future with Alzheimer's Disease.

Setting the distance analysis view

This setting influences, whether biomedical concepts with a high, low or medium frequency in PubMed are presented in the interface. Choose the concept frequency in PubMed which you want to apply.

Concept frequency:

☐ low

☒ medium

☐ high

Settings for the emerging concepts view

Emerging concepts are identified by looking for concepts, which are mentioned in the context of Alzheimer's Disease and in the context of concepts not yet co-occurring with Alzheimer's Disease. The more overlapping concepts are available, the higher the likeliness, that the emerging concept is relevant for Alzheimer's Disease. Do select the minimal number of overlapping concepts.

Number of overlapping concepts:

The slope in the histogram of the distance analysis view is indicating how strong the affinity of a - not yet - co-occurring concept to the dashboard topic (Alzheimer's Disease) is growing over time. By selecting the algorithm and desired slope increase, the user can filter. Select the algorithm and the increase of the slope for emerging concepts.

Algorithm:

☒ Linear

☐ Exponential

Increase of slope:

The views in this part of the Dashboard does not directly generates "scientific innovations" and "truths", but the identified concepts can be evaluated and judged by a researcher in order to stimulate new ideas and thoughts. In this case, pentanols can possibly be related to Alzheimer Disease in the near future. Clicking on pentanols will provide you with an overview of pentanols and weighting factors which indicate the relative possibility of each pentanol co-occurring with Alzheimer Disease in the future.