# Pfizer – Blog Analysis
## European Healthcare & European Pharmaceuticals

"… analysis of Internet news and Blog sites, focussing on identifying key social opinion leaders; i.e. the network of experts and commentators whose published articles and commentary are driving public opinion about the pharmaceutical industry and healthcare in Europe. The output of this research will be a report detailing the team's findings in terms of:

- the actors in the network
- the relationships between them
- the topics on which they publish
- the impact of their publications

- The team
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- Outputs
  - Selection criteria
  - DB1 – conceptual
  - DB2 – formal
  - Methodology for Blog-analysis
  - Mapping of the blog-space
  - Mapping of key actors
  - Mapping of relationships between blogs
  - Mapping of the topics on which they publish
  - Mapping of the impact of their publications

# Selection criteria

| health | drug development | pharmaceutical industry | disease |
|--------|------------------|-------------------------|---------|
| European healthcare | drug treatment | pharmaceutical | diabetes |
| public health | drug efficacy | European pharmaceutical | alzheimers |
| health care | drug pricing | global pharmaceutical | sex health |
| health service | prescription drug | biotech | infectious |
| health care service | generic drug | drug companies | viruse |
| health care system | over the counter drug | drug company | Virology |
| health policy | counterfeit drug | Pfizer | tropical |
| health technology assessment | biomarker | Glaxosmithkline | Oncology |
| health tourism | biologics | Sanofi Aventis | cancer |
| medical tourism | drug safety | Novartis | blood pressure |
| medicine | drug trial | Hoffmann La Roche | lipid |
| healthcare business | drug testing | Astrazeneca | cholesterol |
| healthcare trust | clinical trial | Johnson & Johnson | urology |
| hospital | adverse effect | Merck & Co | gastro |
| private hospital | side effect | Wyeth | gastrointestinal |
| in-patients | product recall | Eli Lilly | gastric ulcer |
| out patients | reimbursement | Bayer | intestinal |
| patients | pharmacy | Lacer | neuroscience |
| diagnostic | | Bristol Myers Squibb | Central Nervous System |
| | | Shire Pharmaceuticals | metabolic |
| | | Chiron Corporation | metabolism |
| | | Chugai | allergy |
| | | Takeda | respiratory |
| | | Teva Pharmaceutical | |
| | | Ranbaxy | |

# Selection criteria - 2

regulation
compulsory license
litigation
adverse event
risk
trust
International conference on harmonization
Center for Drug Evaluation and Research
European Medicines Evaluation Agency
Food and Drug Administration
Medicines and Healthcare products Regulatory Agency
National Institute for health and Clinical Excellence
community
communities
charities
charity

Europe
France
Spain
Germany
United Kingdom
England

# DB1

- Blog-search engines
  - Technocrati
  - Google blog
- Search string
  - [pharmaceutical / healthcare + Europe /… + key word ]
- Provisional types
  - community discussion
  - news discussion
  - private show
  - institutional discussion
- Identifying four blogs from each string and from each type
- A web crawler was used to automatically extract the text from each URL

# Structure of DB1

| | |
|---|---|
| ID | number in database |
| PageURL | PageURL |
| Search string | Search criteria for each URL |
| Blog title | Blog title |
| Size (KB) | page sizre in KB = volume of information =? Evidence of impact |
| Link in Page URL | Number of external links - cross-reference to other blogs and pages |
| Number of key words in page | Number of key-words from selection criteria present in the blog-page = evidence of relevance |
| Number of internal links | cross-reference between pages in database |

# DB2

- Blog-search engines
  - <span style="color:red">Google blog</span>
- Search string
  - <span style="color:red">[pharmaceutical / healthcare + Europe /… + key word ] – viagra; after January 2006; English language</span>
- Note for total number of results
- Download of all blogs-pages
- Dynamic population
- Internet count of key blog-indicators
  - size of URL in KB
  - Cross-reference between URLs in DB (internal links)
  - Cross-reference to other blogs (external links)
  - Number of occurrences of individual key-words per page *(including double counting for URL presence)*
- Cleaning of DB (cleaning of duplicate pages; 'empty-pages' (=URLs with less then 2BT information; 'shell-pages' (=dictionaries, job-anouncements, lists of URLs without text and URL classifications, or adverts)
- Mapping & data analysis

# Structure of DB2

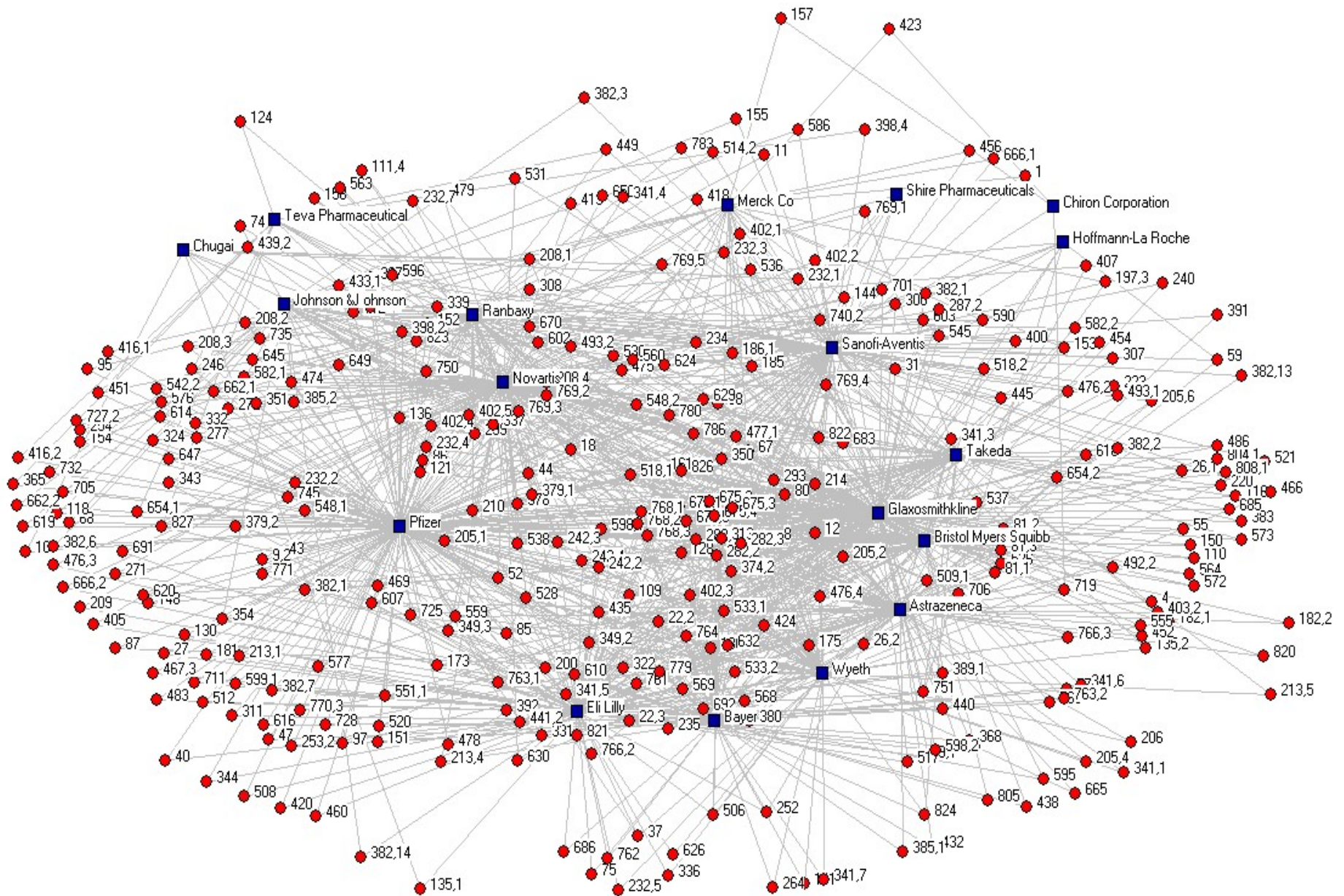| | |
|---|---|
| **ID** | number in database |
| **Number** | number in maps, where the main number is the bloig ID number, and the second number is the page-number in |
| **PageTitle** | PageTitle |
| **PageURL** | PageURL |
| **Month** | Month of blog publishing |
| **Year** | Year of blog publishing |
| **Blog title** | Blog title |
| **Blog URL** | Blog URL |
| **Size (KB)** | page sizre in KB = volume of information =? Evidence of impact |
| **Link in Page URL** | Number of external links - cross-reference to other blogs and pages |
| **Number of key words in page** | Number of key-words from selection criteria present in the blog-page = evidence of relevance |
| **Number of internal links** | cross-reference between pages in database |

# Blog population in DB2

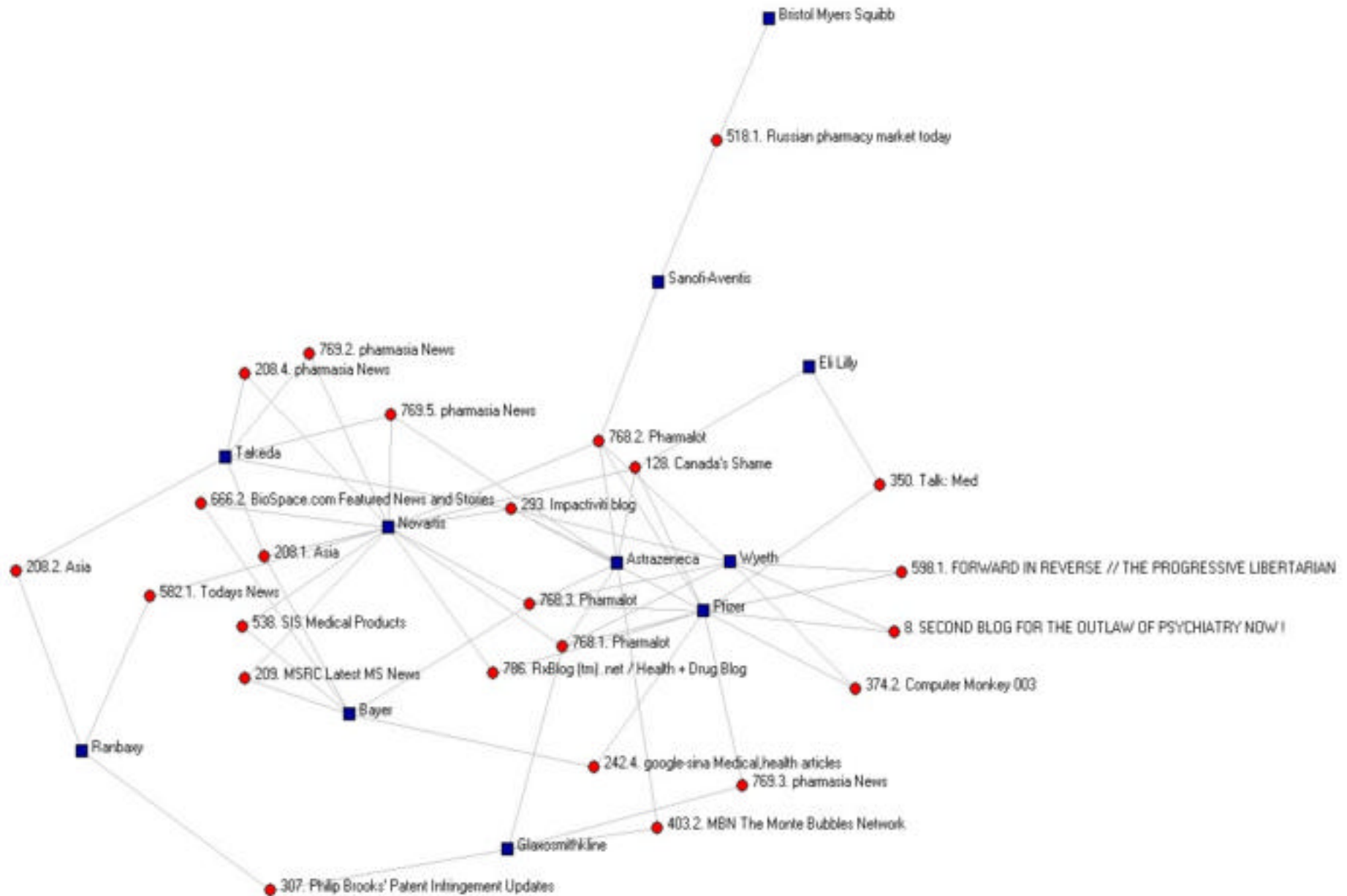| Key word | Total Google-search initial results | The most relevant results | - less duplicates | - less 'shell-pages' = total in final database | - of which unique URL pages that refer only to the company / or key word |
|---|---|---|---|---|---|
| Pfizer | 2363 | 350 | 296 | 279 | 86 |
| Glaxosmithkline | 2408 | 151 | 149 | 205 | 50 |
| Sanofi Aventis | 324 | 273 | 200 | 156 | 55 |
| Novartis | 614 | 263 | 263 | 194 | 61 |
| Hoffmann-La Roche | 33 | 16 | 16 | 11 | 3 |
| AstraZneca | 285 | 111 | 111 | 100 | 16 |
| Johnson & Johnson | 413 | 169 | 169 | 72 | 35 |
| Merck & Co | 2600 / 142 | 391 | 378 | 39 | 11 |
| Wyeth | 2136 | 142 | 142 | 101 | 37 |
| Eli Lilly | 382 | 286 | 213 | 143 | 38 |
| Bayer | 1259 | 252 | 252 | 159 | 77 |
| Lacer | 6 | 6 | 6 | 0 | 0 |
| Bristol Myers Squibb | 262 | 120 | 120 | 94 | 16 |
| Shire Pharmaceuticals | 10 | 9 | 9 | 7 | 1 |
| Chiron Corporation | 14 | 13 | 13 | 6 | 2 |
| Chugai | 26 | 23 | 23 | 18 | 9 |
| Takeda | 61 | 57 | 57 | 56 | 6 |
| Teva Pharmaceutical | 22 | 20 | 20 | 17 | 3 |
| Ranbaxy | 132 | 101 | 101 | 106 | 41 |
| European healthcare | 87 | 71 | 70 | 45 | 38 |
| European Pharmaceutical | 845 | 171 | 170 | 83 | 48 |
| Total Page URL | | 2995 | 2778 | 990 | |

# Net1.1 All ties between Companies and PageURL

**Net1.2 All ties between Companies and PageURL – del pendants**

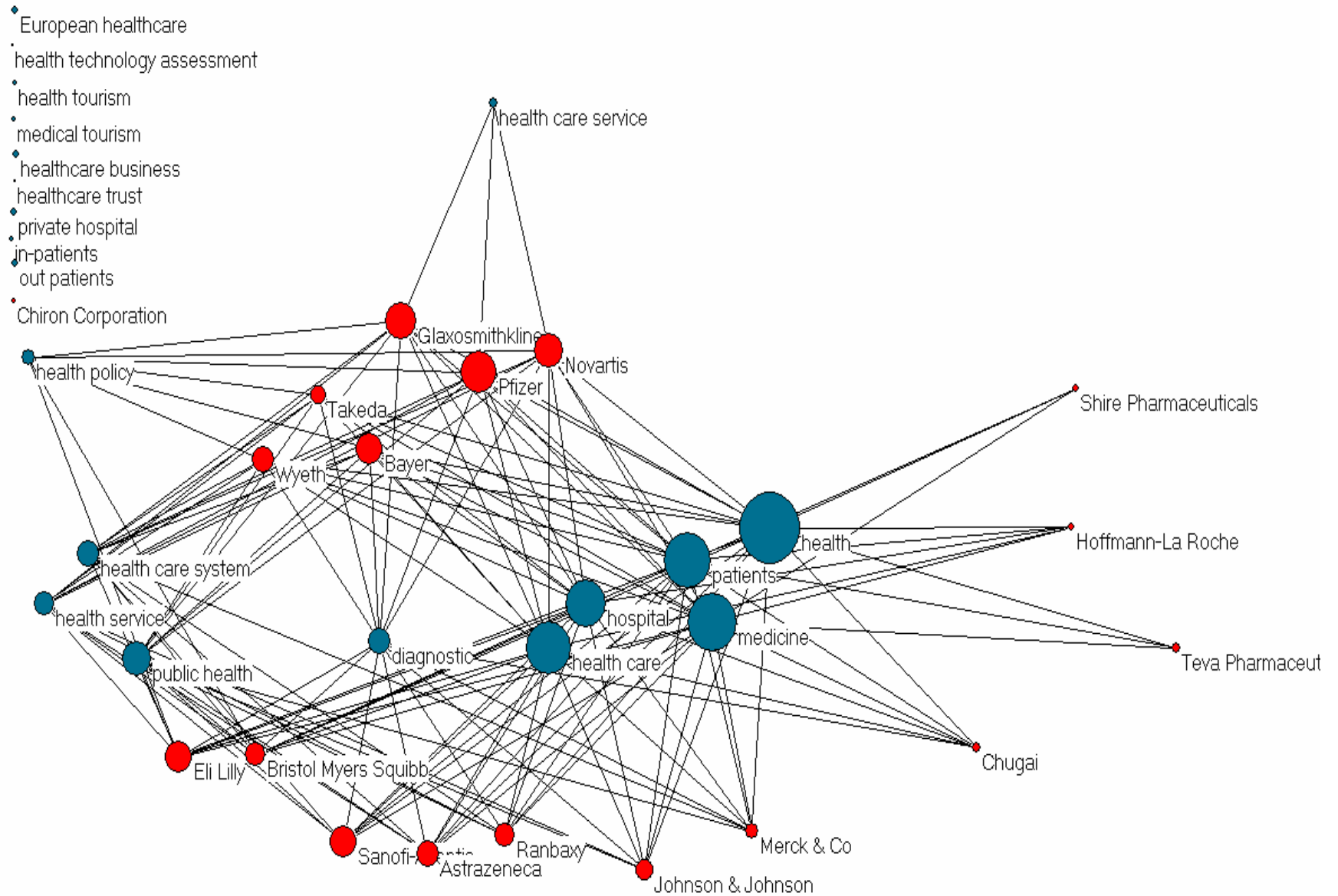# Net1.3 More then 2 ties between Companies and PageURL
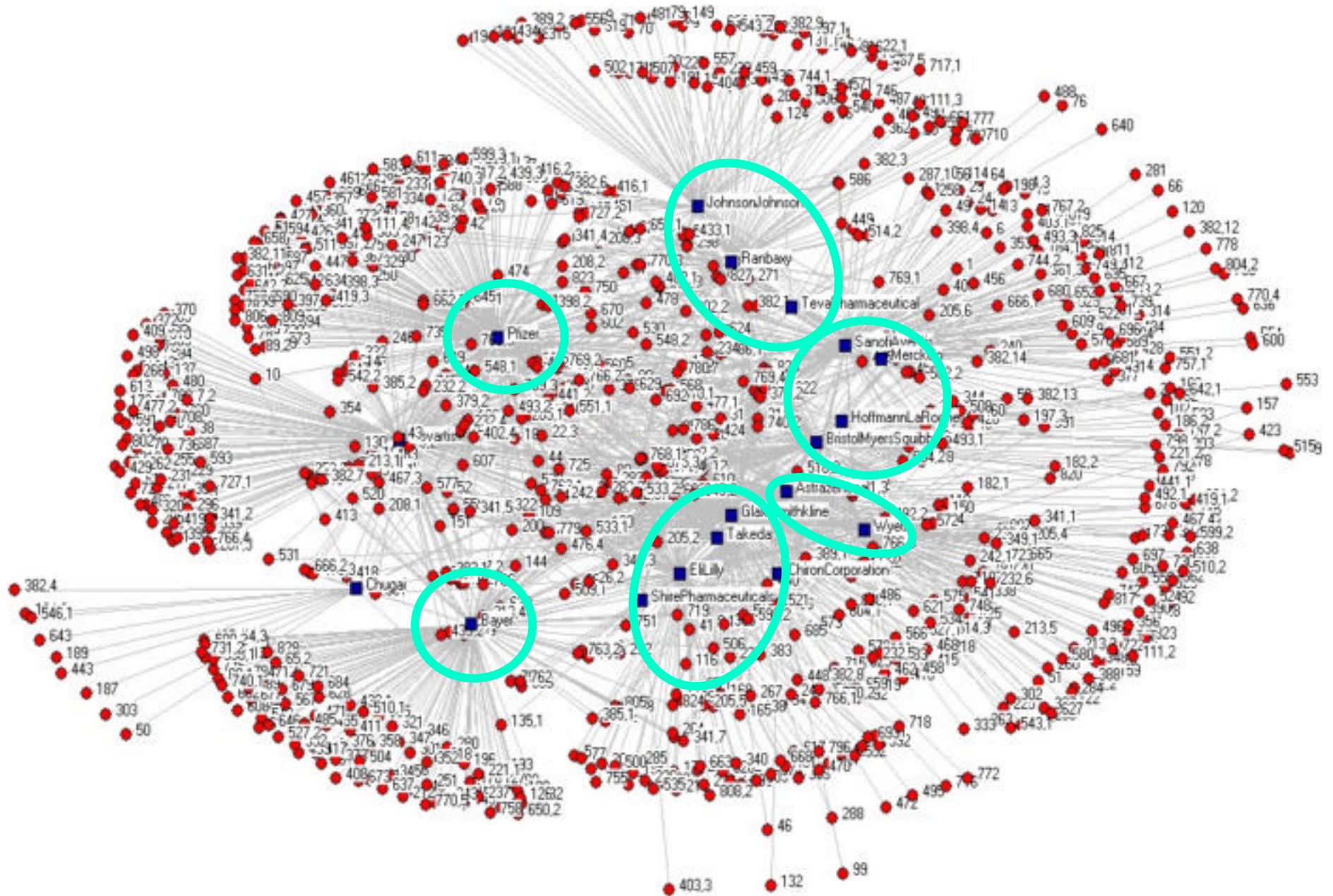
# Net1.4 More then 2 ties between Companies and PageURL – del pendants

# Net1.5 More then 5 ties between Companies and PageURL – del pendants



Bristol Myers Squibb

518.1. Russian pharmacy market today

Sanofi-Aventis

Eli Lilly

769.2. pharmasia News

208.4. pharmasia News

769.5. pharmasia News

768.2. Pharmalot

128. Canada's Shame

350. Talk: Med

Takeda

666.2. BioSpace.com Featured News and Stories

293. Impactiviti blog

Novartis

208.1. Asia

208.2. Asia

582.1. Todays News

538. SIS Medical Products

Astrazeneca

Wyeth

598.1. FORWARD IN REVERSE // THE PROGRESSIVE LIBERTARIAN

768.3. Pharmalot

Pfizer

8. SECOND BLOG FOR THE OUTLAW OF PSYCHIATRY NOW !

768.1. Pharmalot

209. MSRC Latest MS News

786. RxBlog (tm) .net / Health + Drug Blog

374.2. Computer Monkey 003

Bayer

Ranbaxy

242.4. google-sina Medical,health articles

769.3. pharmasia News

403.2. MBN The Monte Bubbles Network

Glaxosmithkline

307. Philip Brooks' Patent Infringement Updates

# Net2.1a Companies vs. key words in block A. HEALTH (>5 ties, absolute value)



European healthcare
health technology assessment
health tourism
medical tourism
healthcare business
healthcare trust
private hospital
in-patients
out patients
Chiron Corporation
Glaxosmithkline
health policy
Novartis
Pfizer
Takeda
Shire Pharmaceuticals
Wyeth
Bayer
Hoffmann-La Roche
health care system
health
patients
health service
hospital
medicine
diagnostic
health care
public health
Teva Pharmaceut
Eli Lilly
Bristol Myers Squibb
Chugai
Sanofi-
Ranbaxy
Merck & Co
Astrazeneca
Johnson & Johnson

# Net2.1b Companies vs. key words in block A. HEALTH (normalised value)

# Net2.2a Companies vs. key words in block B. DRUGS (>10 ties, absolute value)
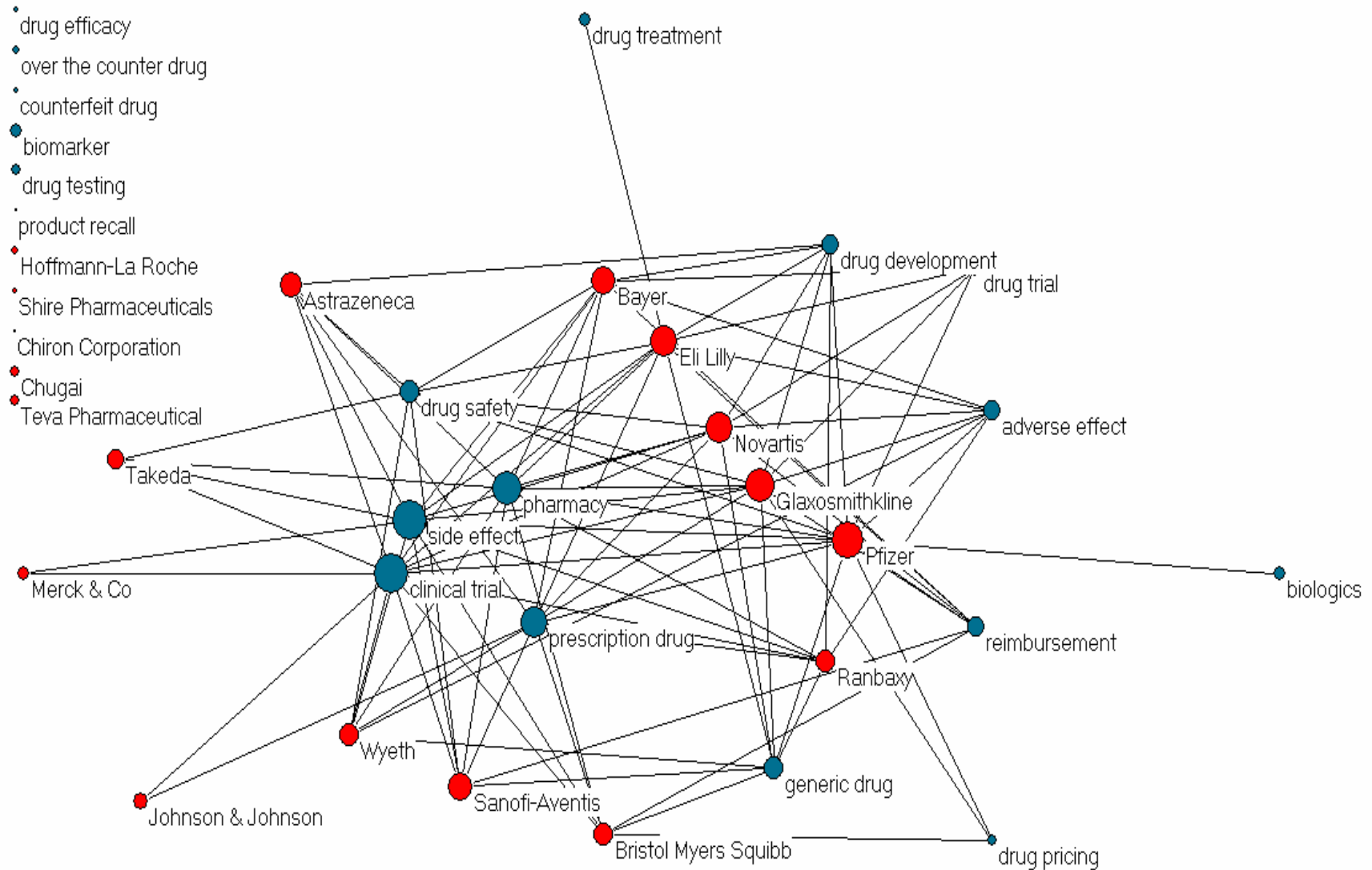
# Net2.2b Companies vs. key words in block B. DRUGS (normalised value)
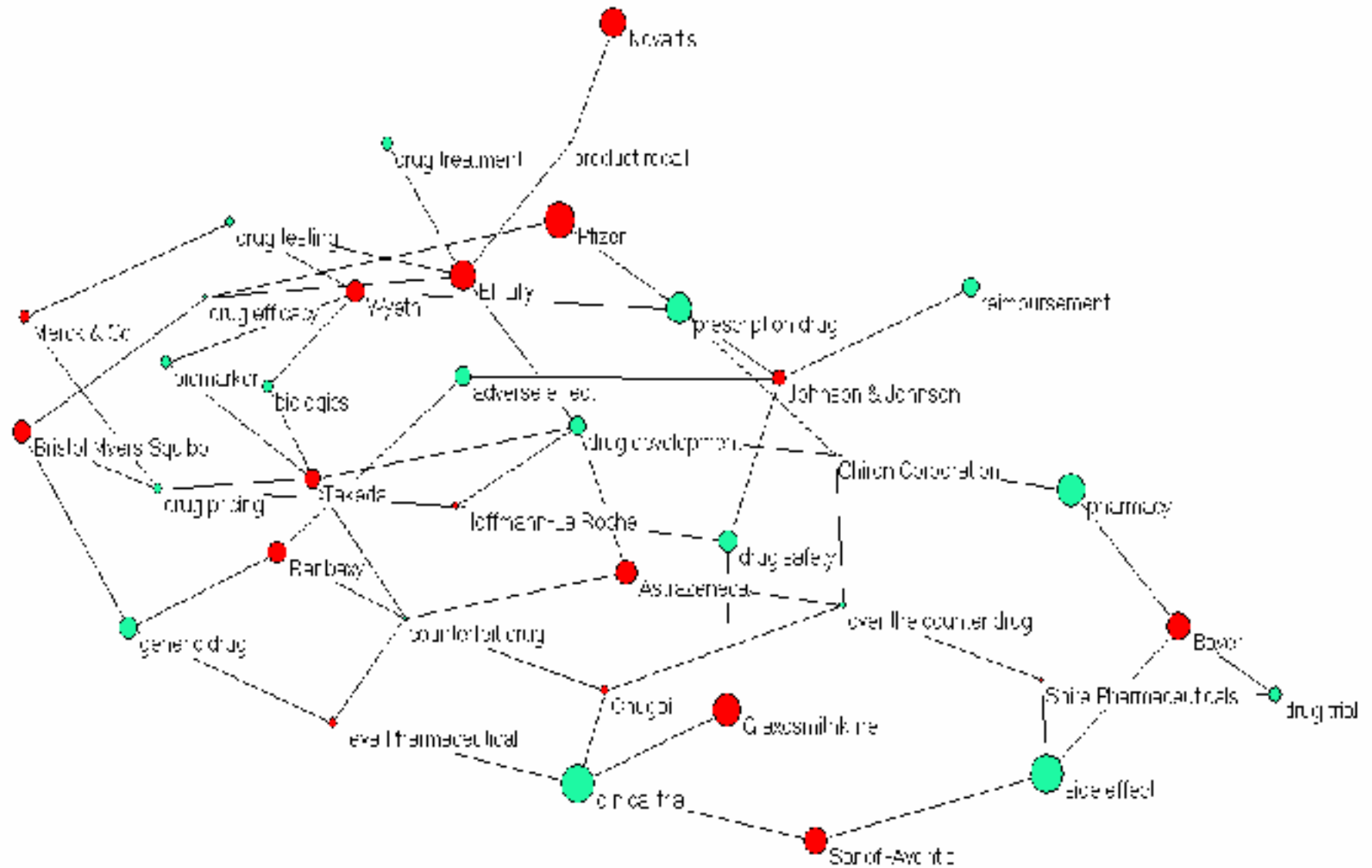
# Net2.2c Companies vs. key words in block B. DRUGS (normalised value)
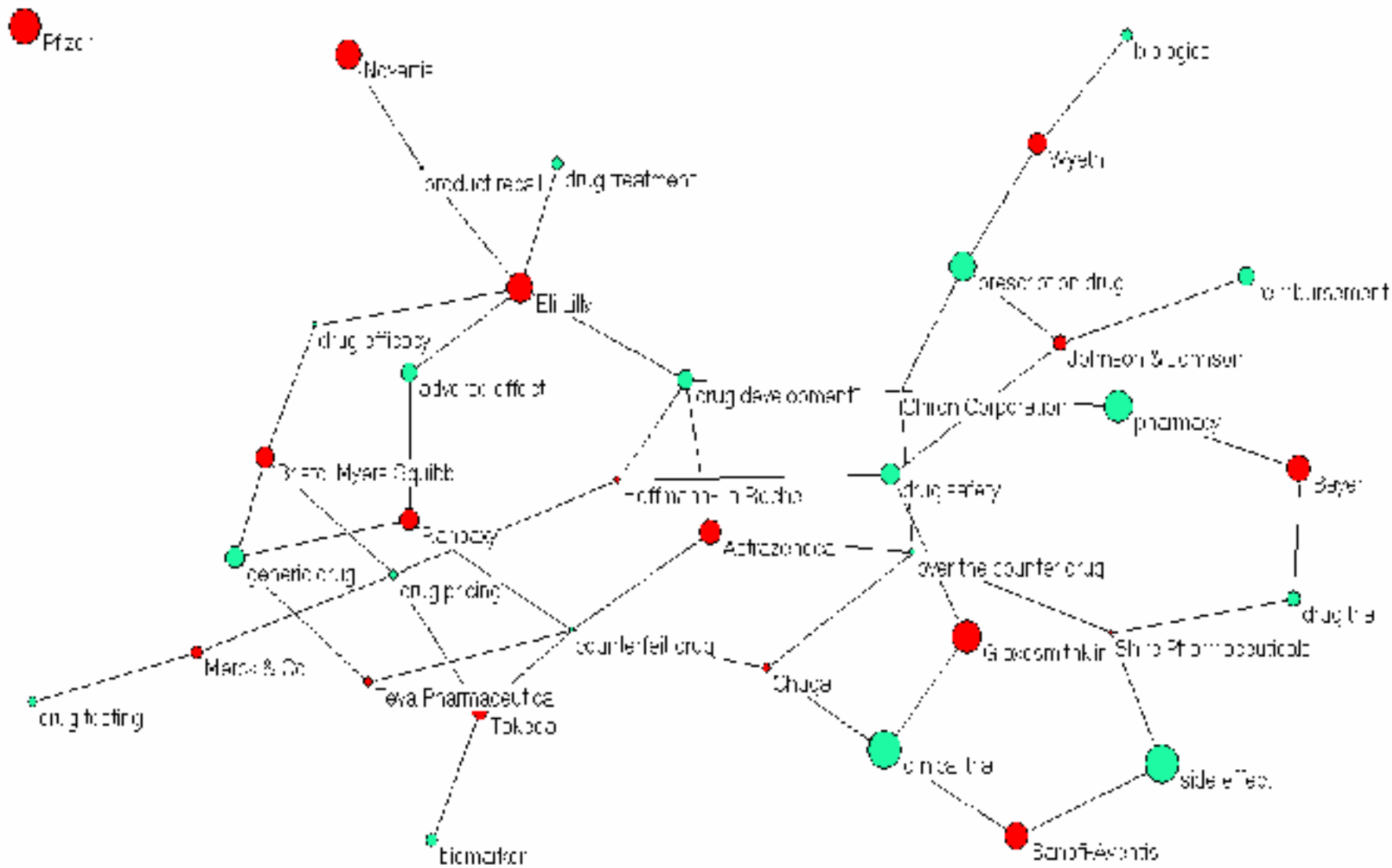
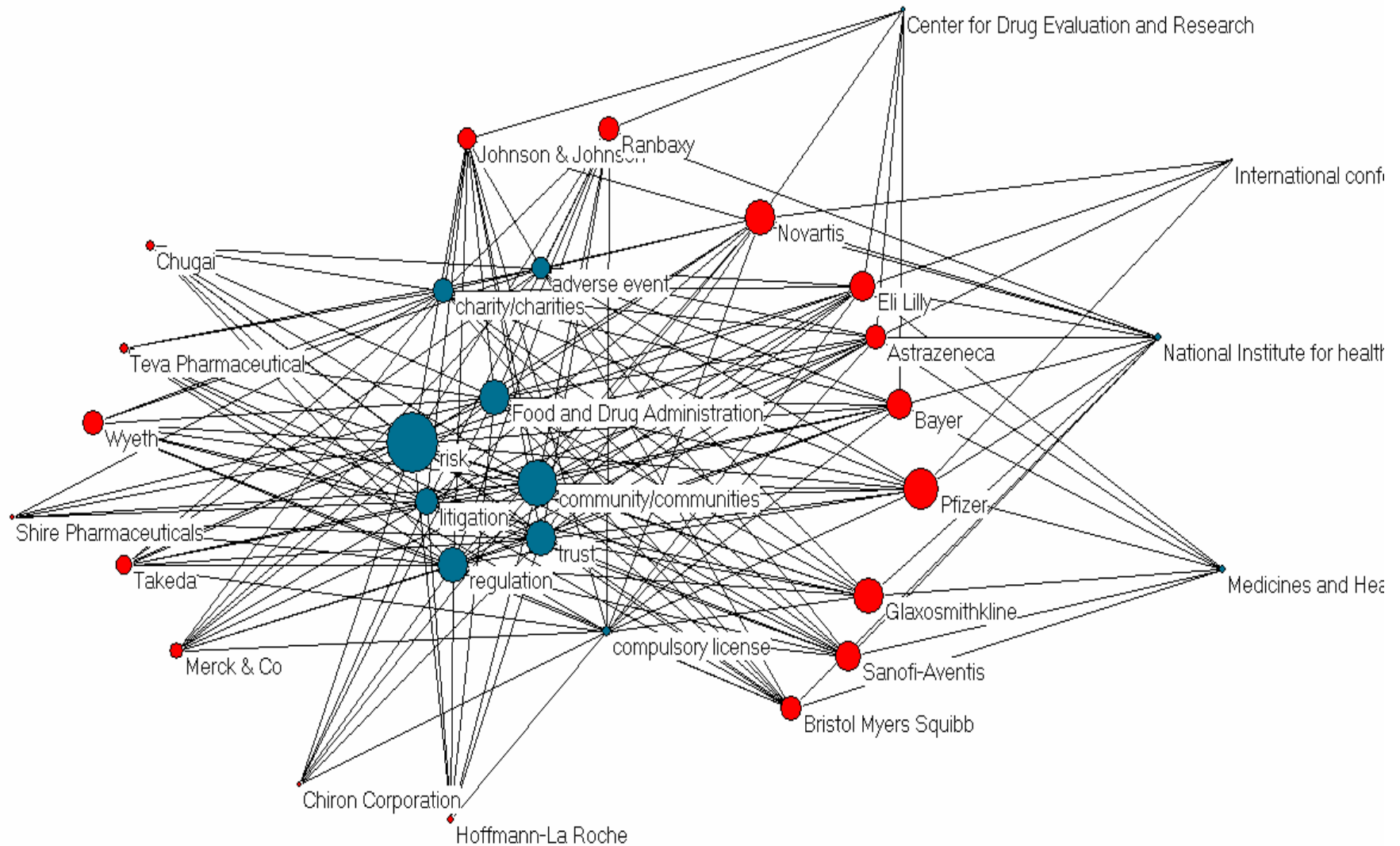# Net2.3a Companies vs. key words in block D. DISEASE (>10 ties absolute value)
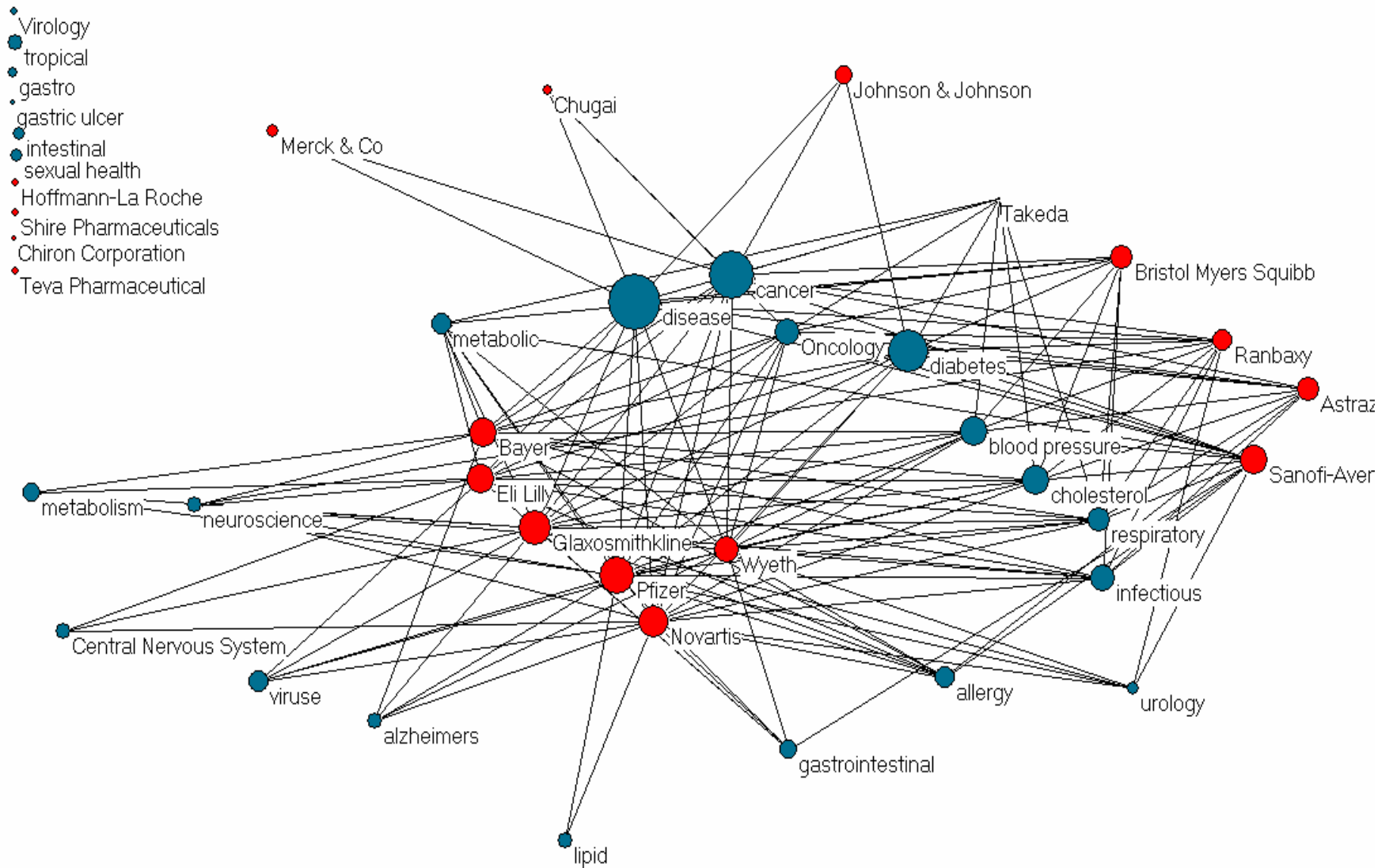
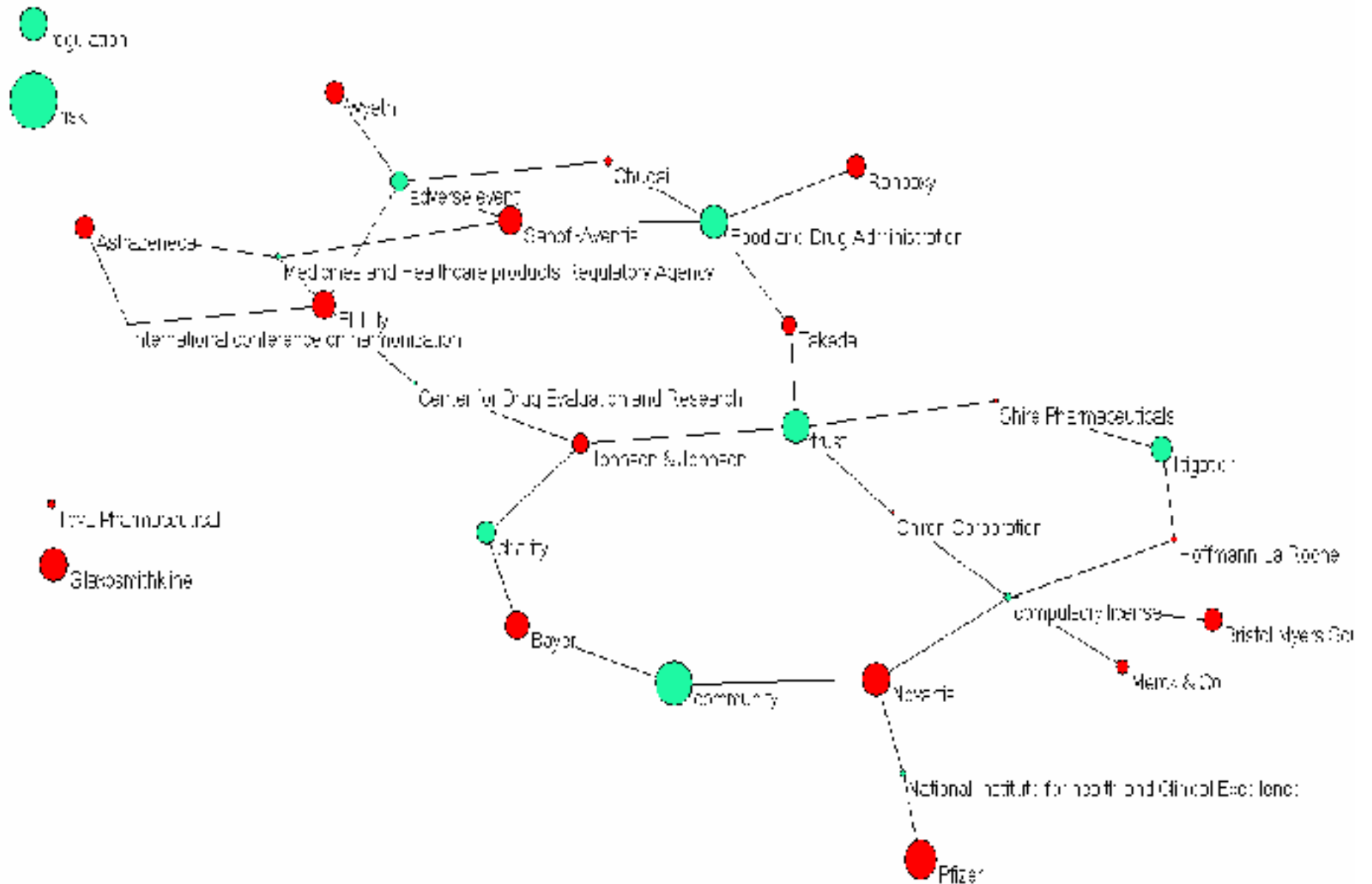# Net2.3b Companies vs. key words in block D. DISEASE (normalised value)
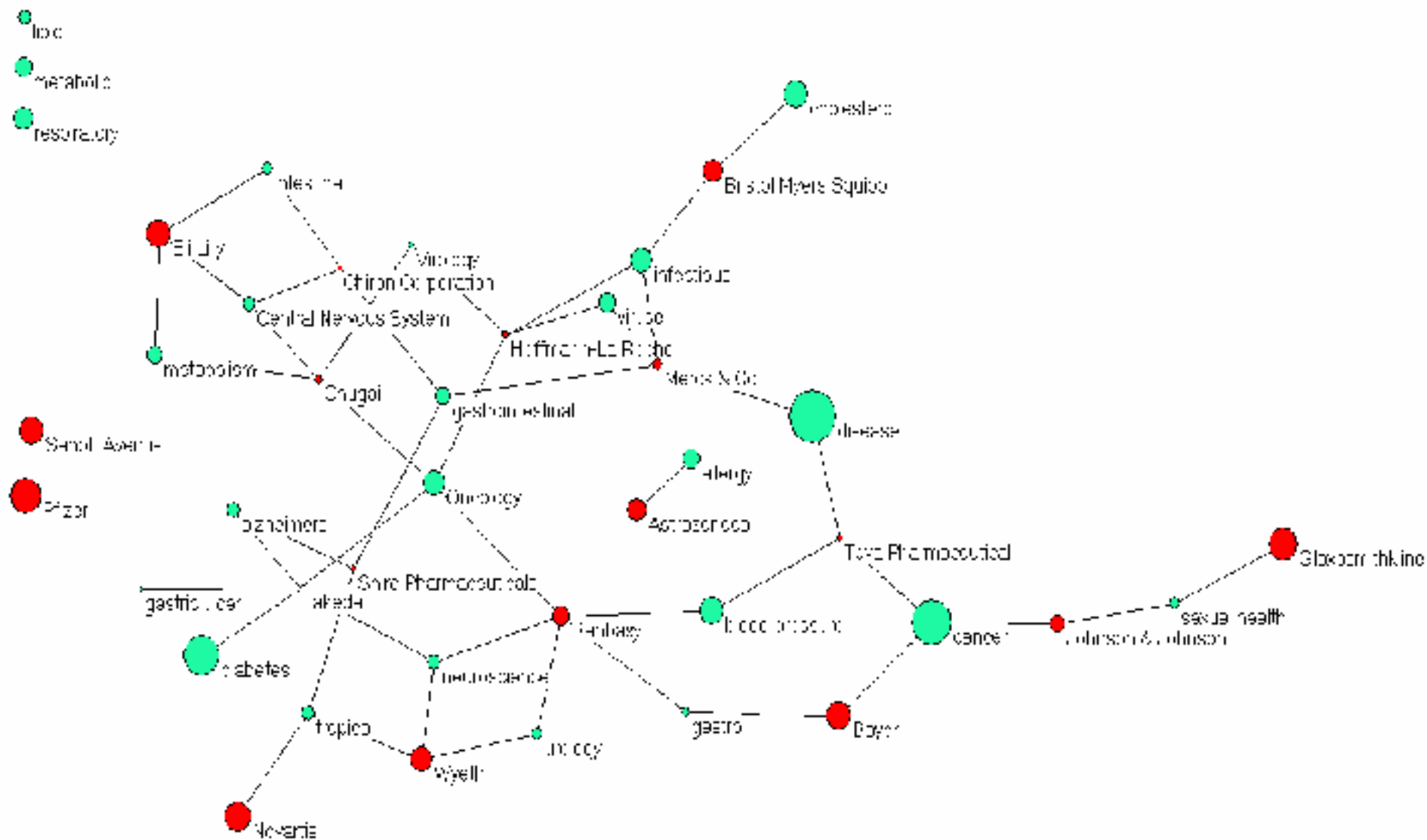
# Net2.3c Companies vs. key words in block D. DISEASE (normalised value)
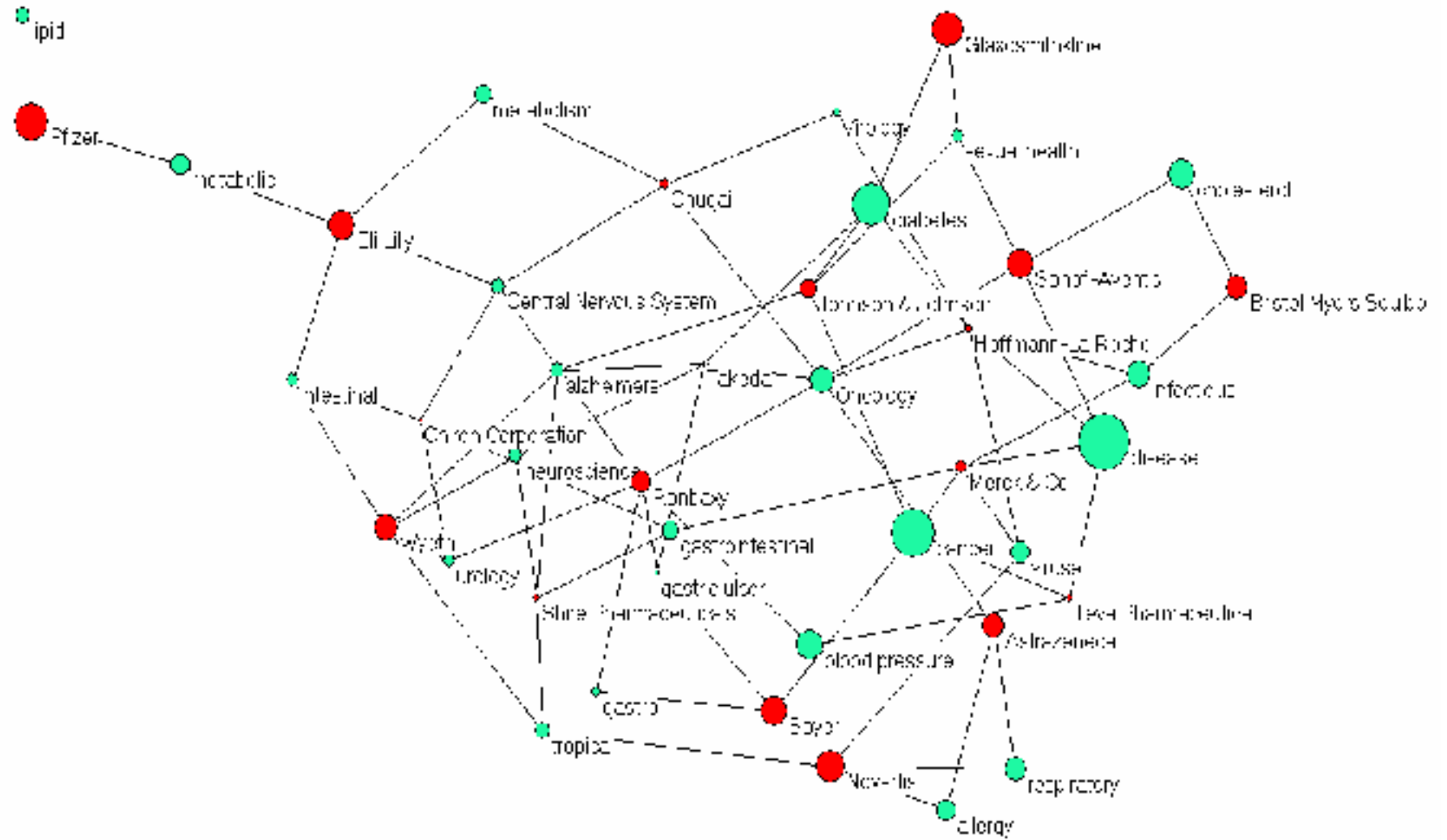
# Net2.4a Companies vs. key words in block E. REGULATION (all ties, absolute value)

# Net2.4b Companies vs. key words in block E. REGULATION (normalised value)

# Net2.4c Companies vs. key word in block E. REGULATION (normalised value)

# Net 3. 1 Ties Between Page URLs based of internal links – node-size is equivalent to the size of the blog (KB)
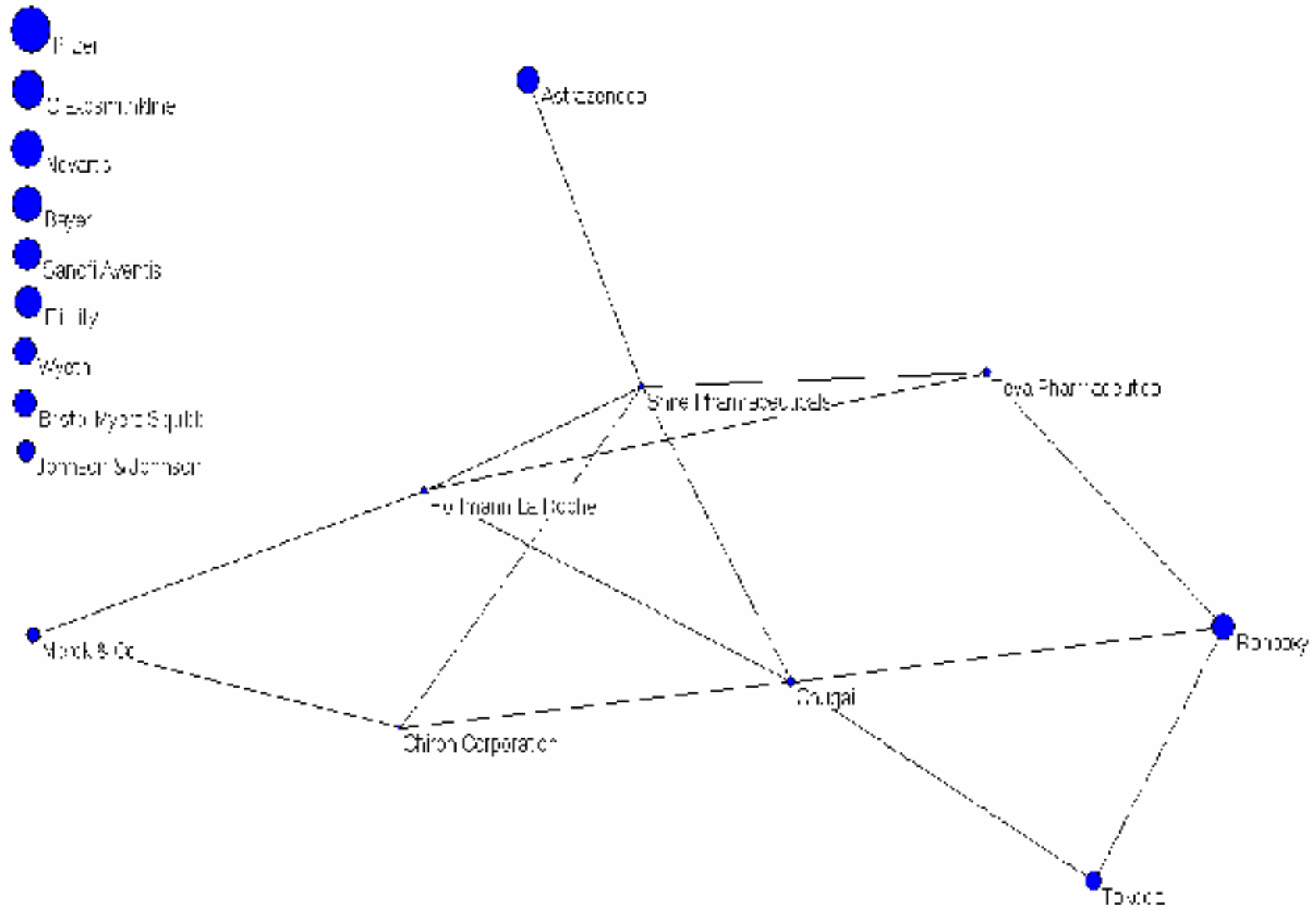
# Net3. 2 Ties Between Page URLs based of internal links - node size is equivalent to the size of the blog (KB); colour corresponds with number of external links
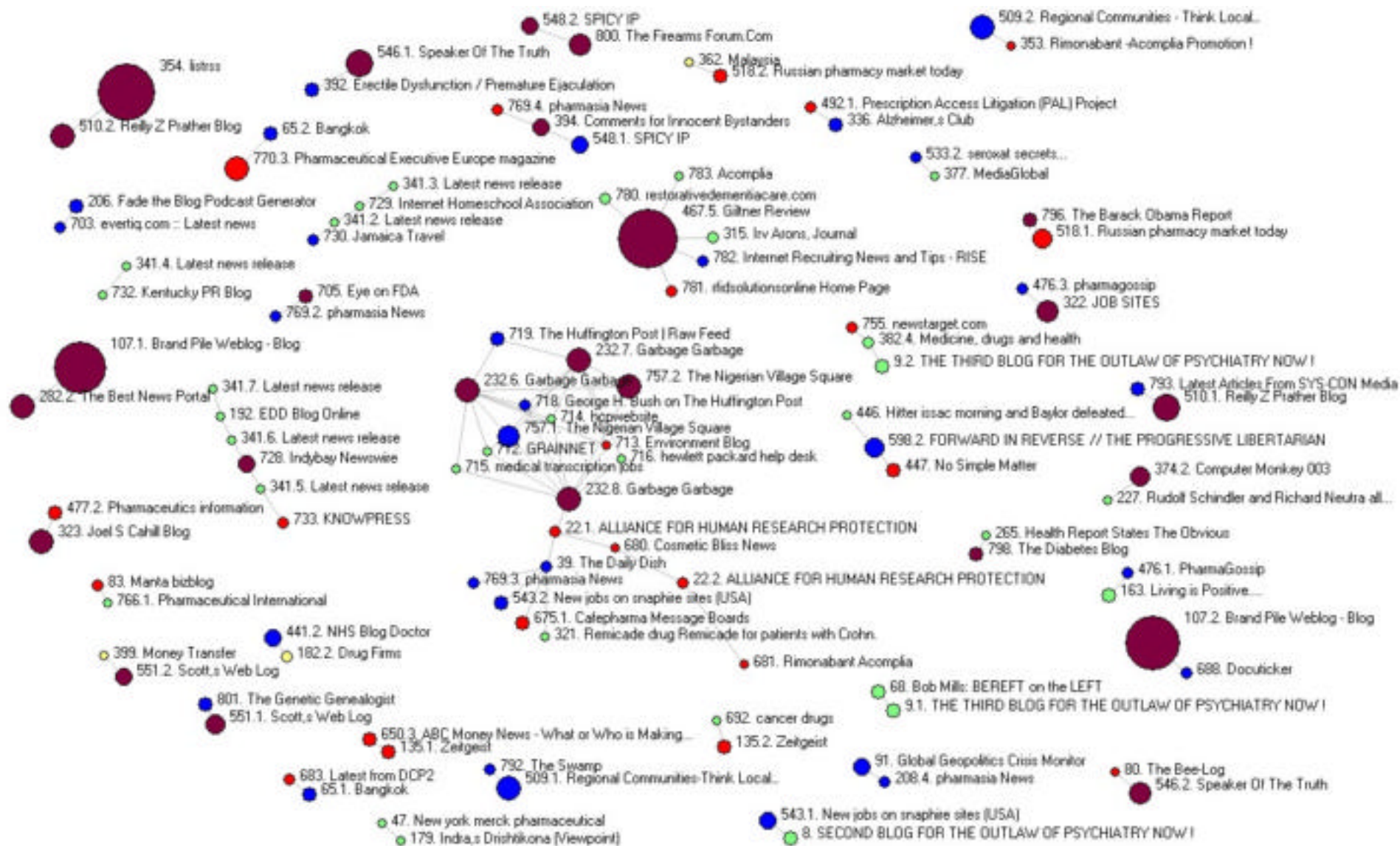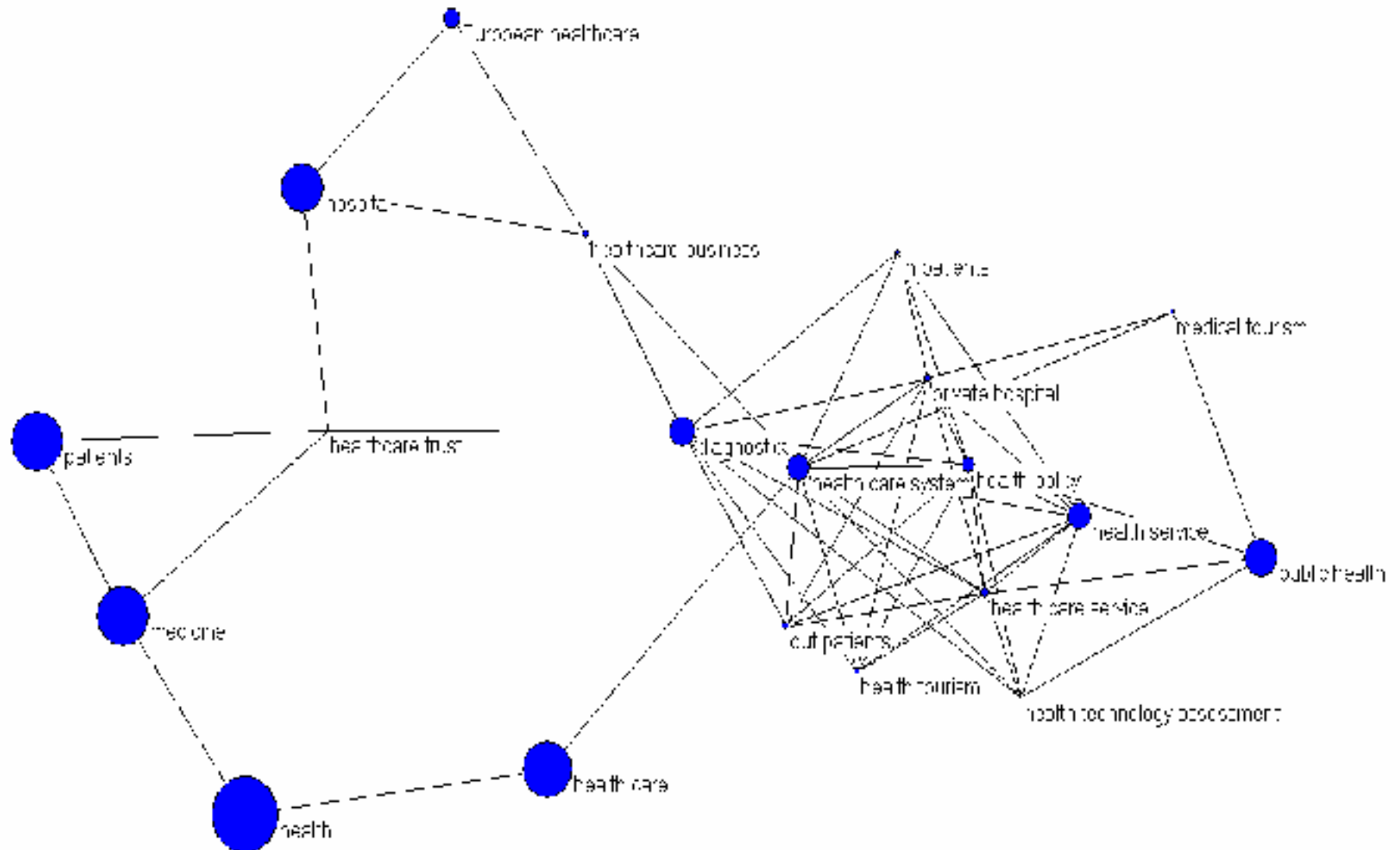
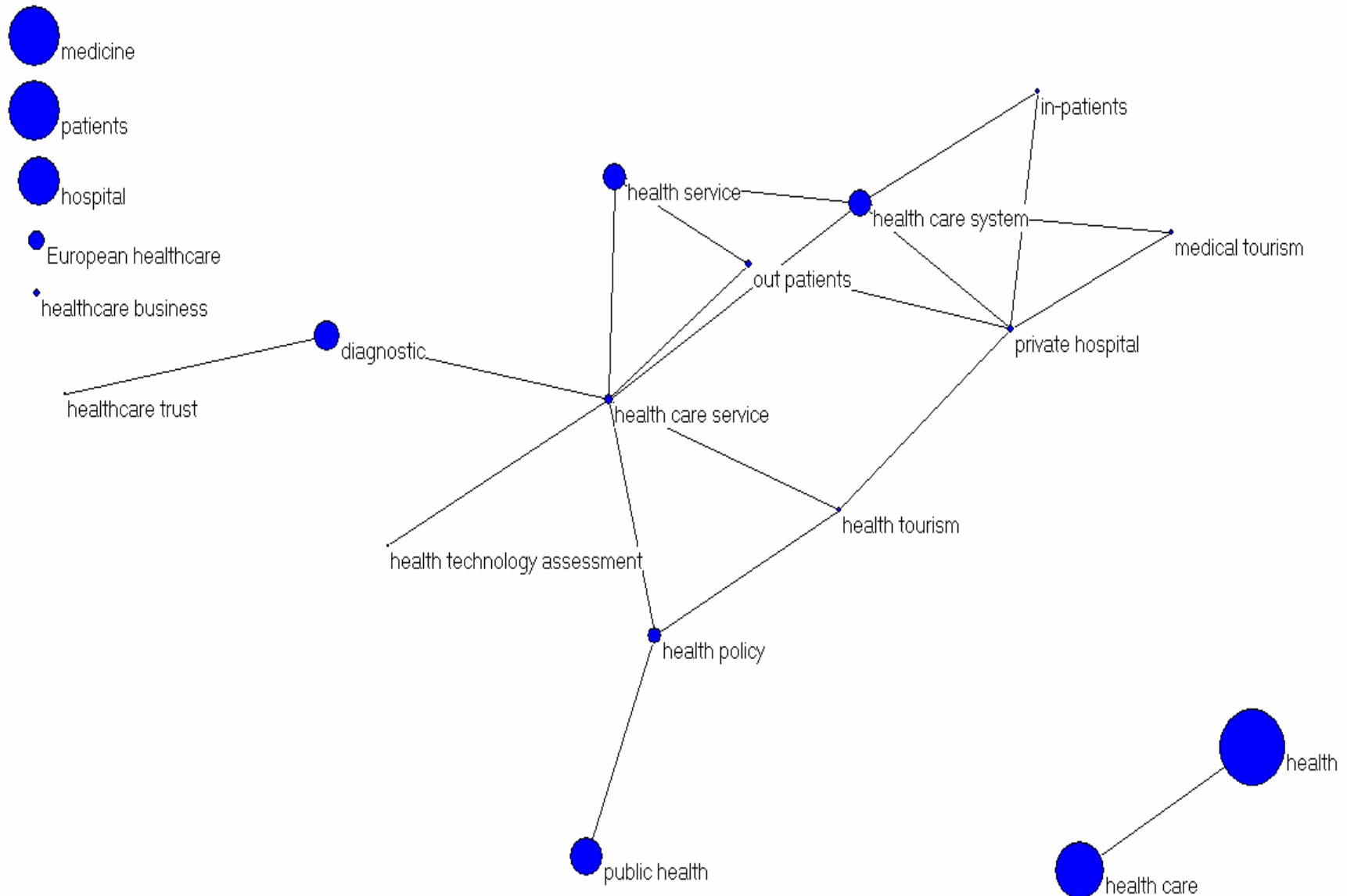**Net 4.1 Co-occurrence of pharmaceuticals companies (X²>0)**
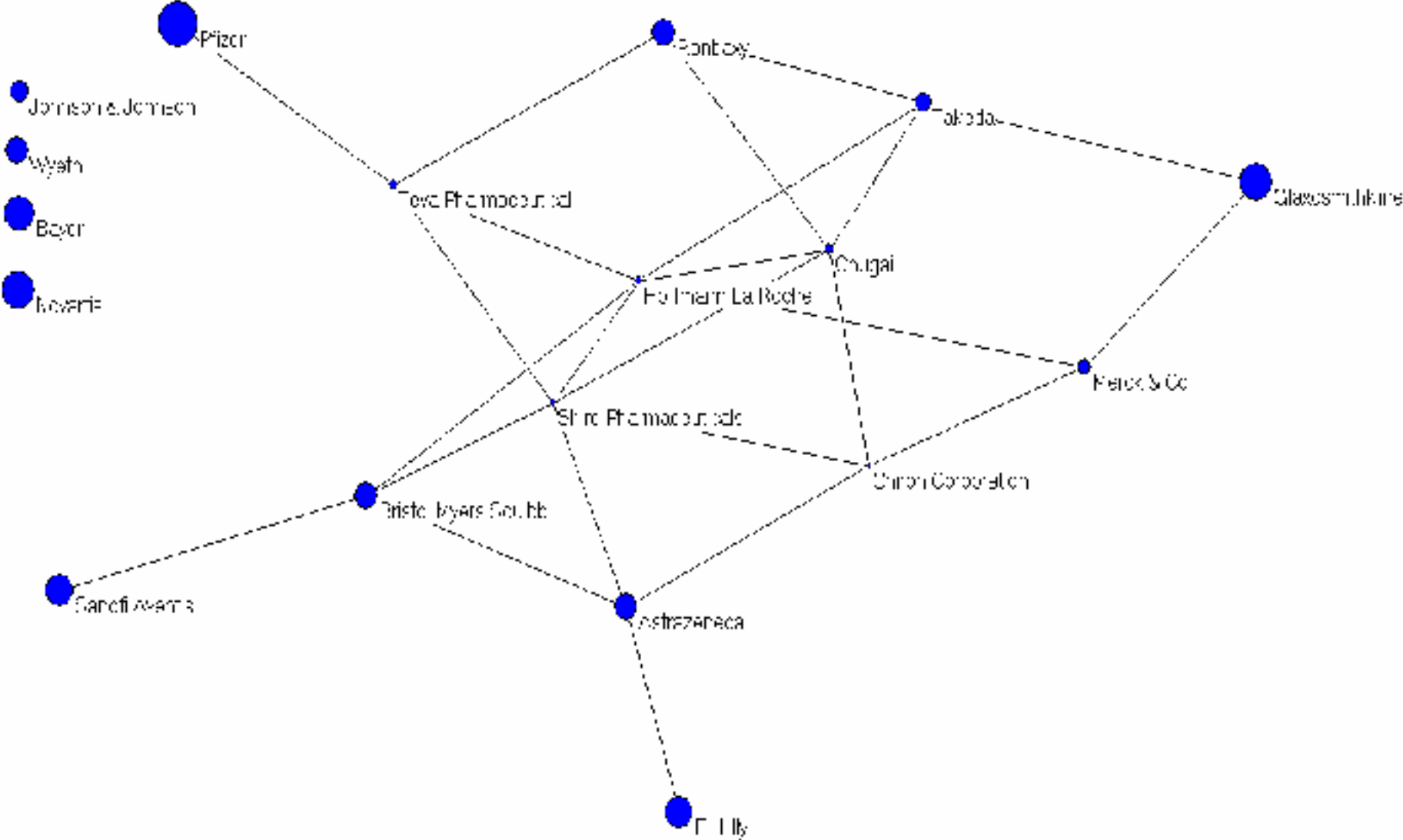
**Net 4.1b Co-occurrence of pharmaceuticals companies (X²>0,3)**

# Net 4.2a Co-occurrence of key word in block A. HEALTH (X²>0)

**Net 4.2b Co-occurrence of key word in block A. HEALTH (X²>1)**

medicine

patients

hospital

European healthcare

healthcare business

healthcare trust

diagnostic

health service

health care system

in-patients

medical tourism

out patients

private hospital

health care service

health technology assessment

health tourism

health policy

public health

health

health care

**Net 4.3a Co-occurrence of key word in block C. INDUSTRY (X²>0)**

# Net 4.3b Co-occurrence of key word in block C. INDUSTRY (X²>1)

**Net 4.4a Co-occurrence of key word in block D. DISEASE (X²>0)**
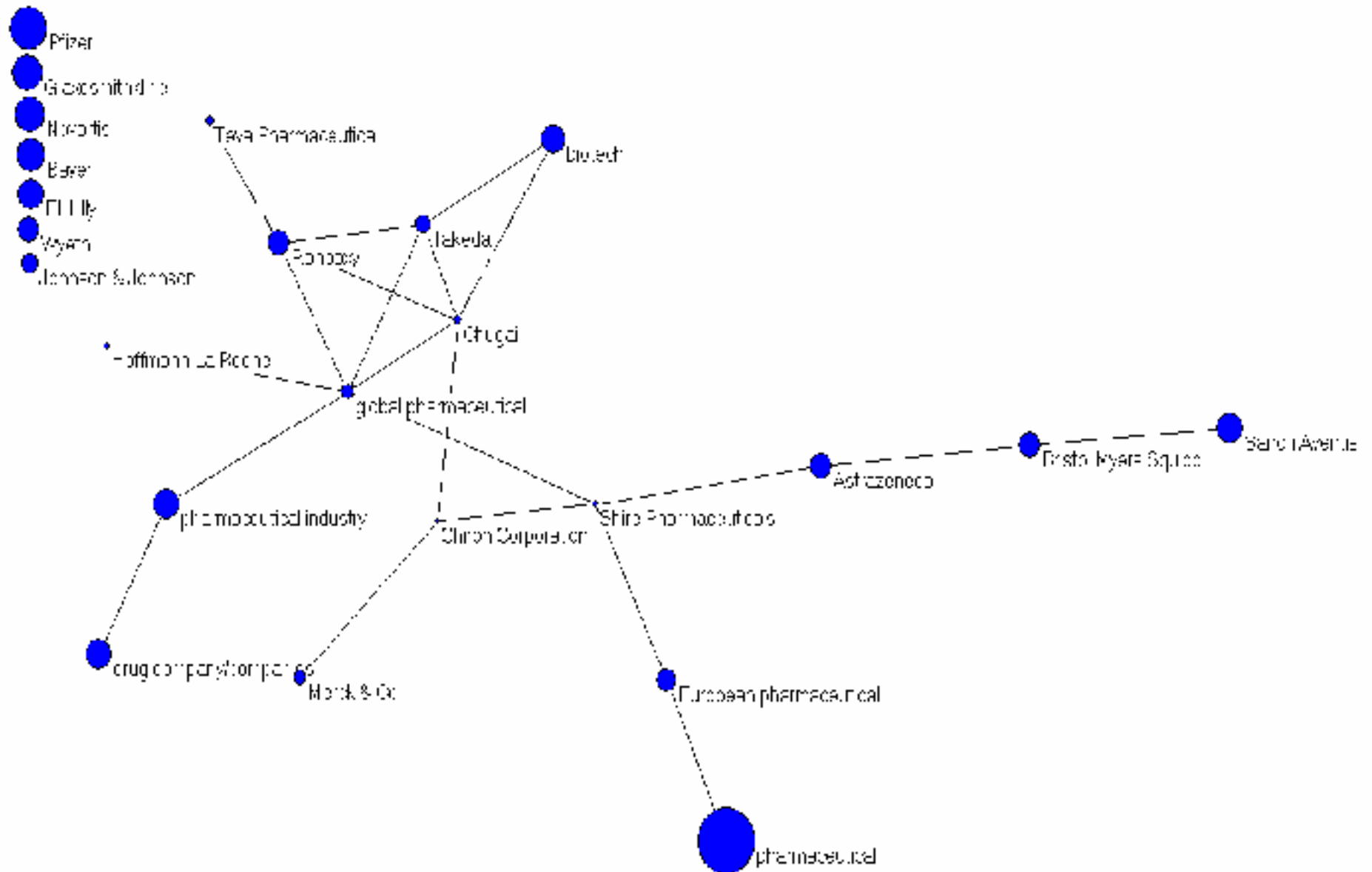
# Net 4.4b Co-occurrence of key word in block D. DISEASE (X²>1)

**DB1 Ties between URLs & Key-words**

Net 5. Ties between URLs & Key-words (DB1)
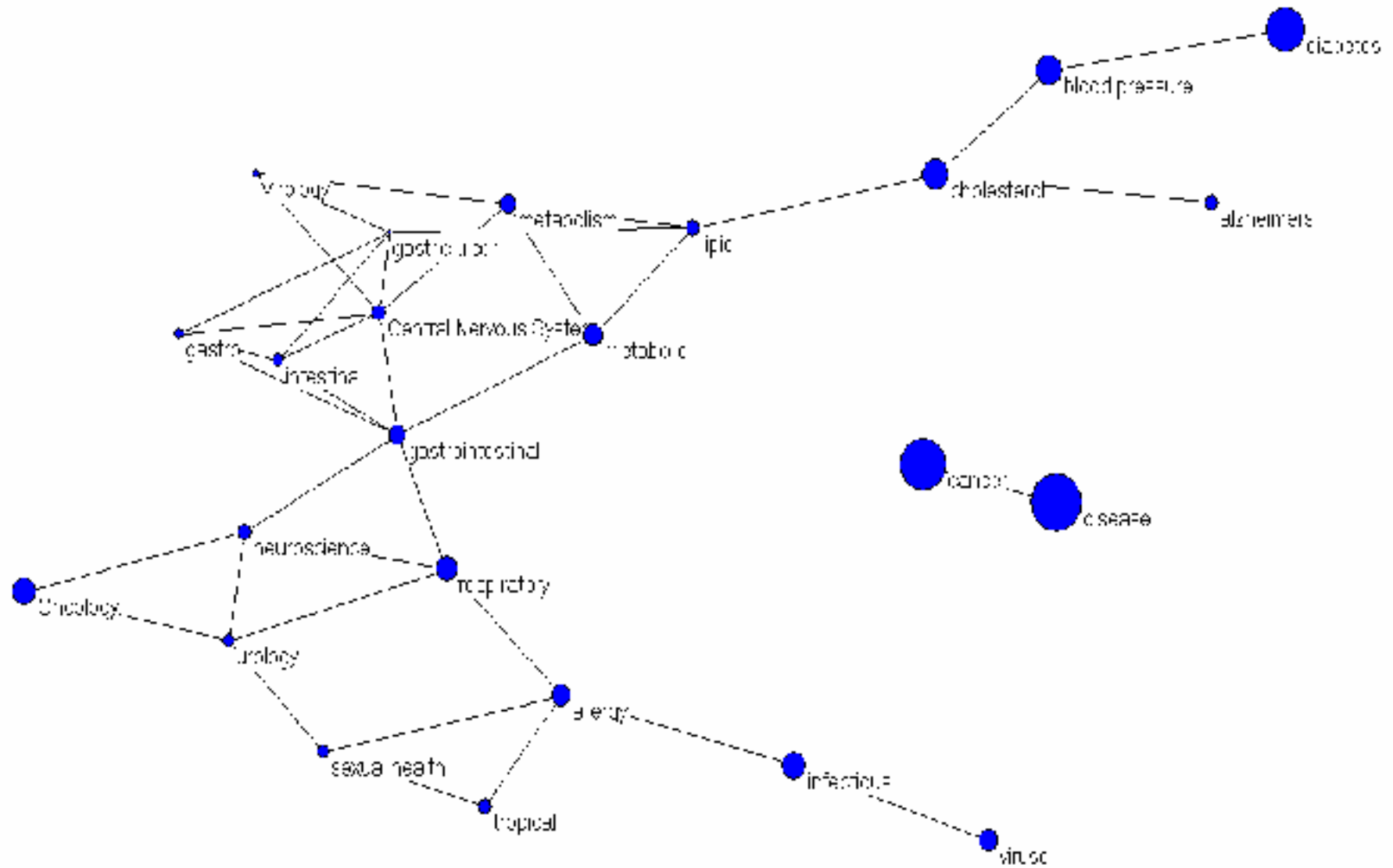
# Recommendations for Future Research

- Regular mapping of the blog-space in order to track major shifts in public opinion
- Monitoring the evolution of specific blogs
- In-depth blog-text analysis to reveal the transfer of values and ideas and the emergence of new ones
- A repetition of our search strategy is recommended at short intervals
- Recommended representative research of the individual semantic blocks (DRUGS, DISEASE, INDUSTRY, and INSTITUTIONS)
- Inter-firm associations and competition strategies
- Unique blog ranking in specific semantic fields.