

The CBD: Patent Indicators and Landscapes

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of Genomics (CESAGen), Lancaster University,

WIPO-FAO Symposium on public patent
landscaping in the life sciences, Geneva,
April 7-8, 2008

The CBD

- ▶ The third objective of the Convention on Biological Diversity (CBD) is concerned with the fair and equitable sharing of the benefits arising from the utilization of genetic resources.
- ▶ This is linked to provisions on access; technology transfer and IP;
- ▶ Strongly linked to the issue of “biopiracy”, human rights, and the value(s) of genetic resources/ TK;
- ▶ International ABS regime (2010).










Patents and the CBD

- ▶ Growing recognition that there is a problem called biopiracy/
misappropriation with regard to biodiversity and traditional knowledge;
- ▶ Some proposed solutions include:
 - ▶ a) disclosure of origin;
 - ▶ b) certificates
- ▶ The basic problem is that we have no clear picture of where biodiversity and TK are in the system;

Where is Biodiversity and TK in the system?

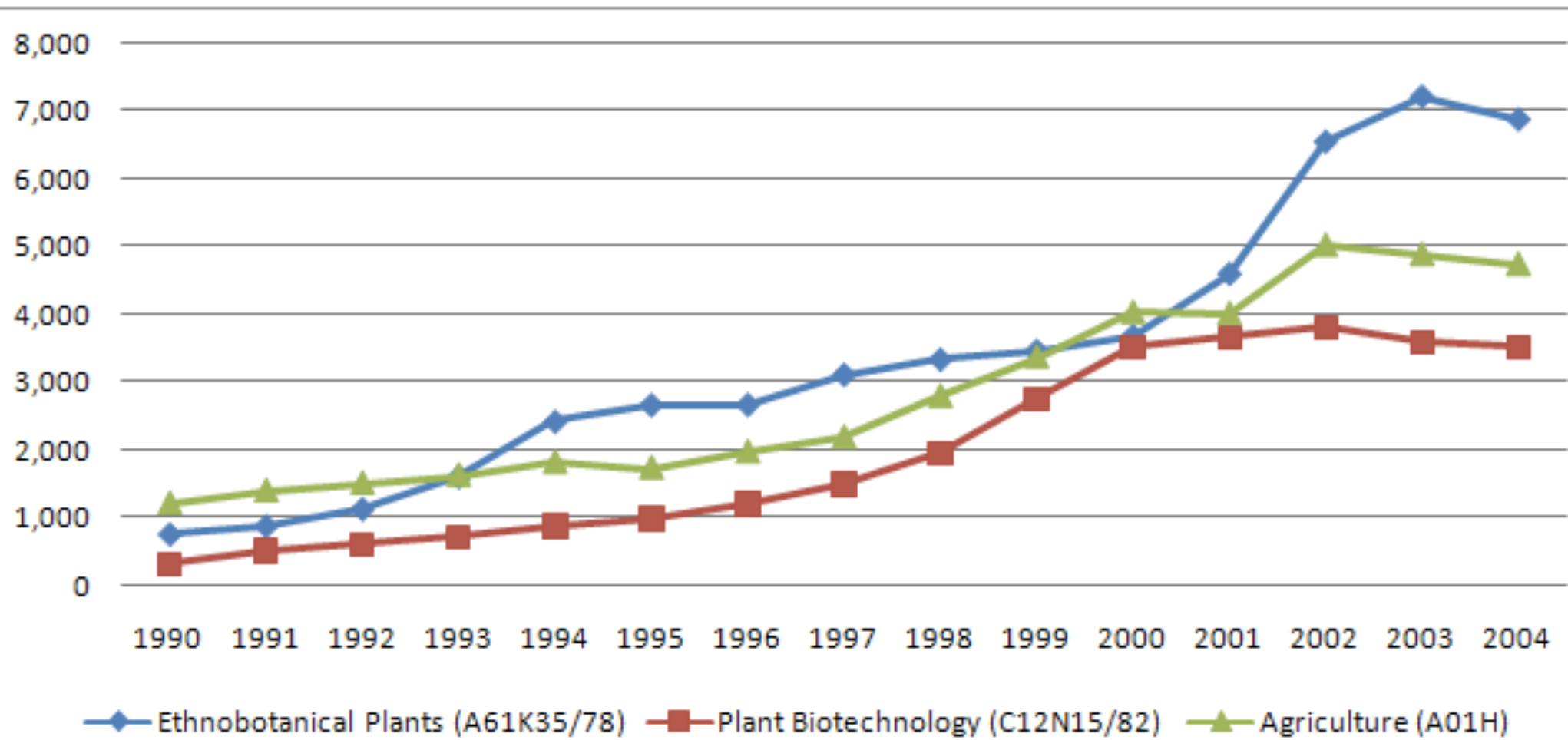
- ▶ A need for quantitative indicators of global, regional, national activity;
- ▶ Links to the 2010 Indicators and MDGs on ABS;
- ▶ The IPC is the key tool for quantitative analysis across sectors (PATSTAT);
- ▶ Use of software mapping, analytics and corpus linguistics tools to answer questions at a high level of detail.

AGENT IMPROVING PERIPHERAL BLOOD FLOW

[Bibliographic data](#)[Description](#)[Claims](#)[Mosaics](#)[Original document](#)[INPADOC legal status](#)**Publication number:** WO2005094860**Publication date:** 2005-10-13**Inventor:** YOSHIDA YUJI (JP); KISO YOSHINOBU (JP);
MATSUMOTO YUTA (JP)**Applicant:** SUNTORY LTD (JP); YOSHIDA YUJI (JP); KISO
YOSHINOBU (JP); MATSUMOTO YUTA (JP)**Classification:****- international:** *A61K36/18; A23G3/00; A23L1/30; A23L2/02; A61P9/00;
C12G3/04; A61K36/18; A23G3/00; A23L1/30; A23L2/02;
A61P9/00; C12G3/00; (IPC1-7): A61K35/78; A23G3/00;
A23L1/30; A23L2/02; A61K7/00; A61P9/00; C12G3/04***- european:** A23L1/30B; A61K36/31; C12G3/04**Application number:** WO2005JP06325 20050331**Priority number(s):** JP20040101735 20040331**Also published as:** [JP2005281272 \(A\)](#)**Cited documents:** [BR9900721](#)
 [BR9901909](#)
 [JP2004000171](#)
 [JP2002515401](#)
 [JP2002020246](#)
 [JP2000334044](#)
 [WO0051548](#)
 [XP002998116](#)[less <<](#)[View INPADOC patent family](#)[Report a data error here](#)

Abstract of **WO2005094860**

It is intended to provide an efficacious agent for improving peripheral blood flow which can improve symptoms caused by peripheral blood flow disorders (chill, palsy, pain, skin troubles, etc.) or skin disorders accompanying peripheral blood flow disorders (cold injury, frostbite, raw with cold, chap, etc.) and has no side effect. More specifically speaking, an agent for improving peripheral blood flow which contains, as the active ingredient, an extract of a plant belonging to the family Cruciferae and the genus *Lepidium*, still specifically, an agent for improving peripheral blood flow which contains, as the active ingredient, an extract of maca (*Lepidium myenii* Walp); and foods, drinks, cosmetics or drugs containing the agent for improving peripheral blood flow.



Main Indicators - Plants

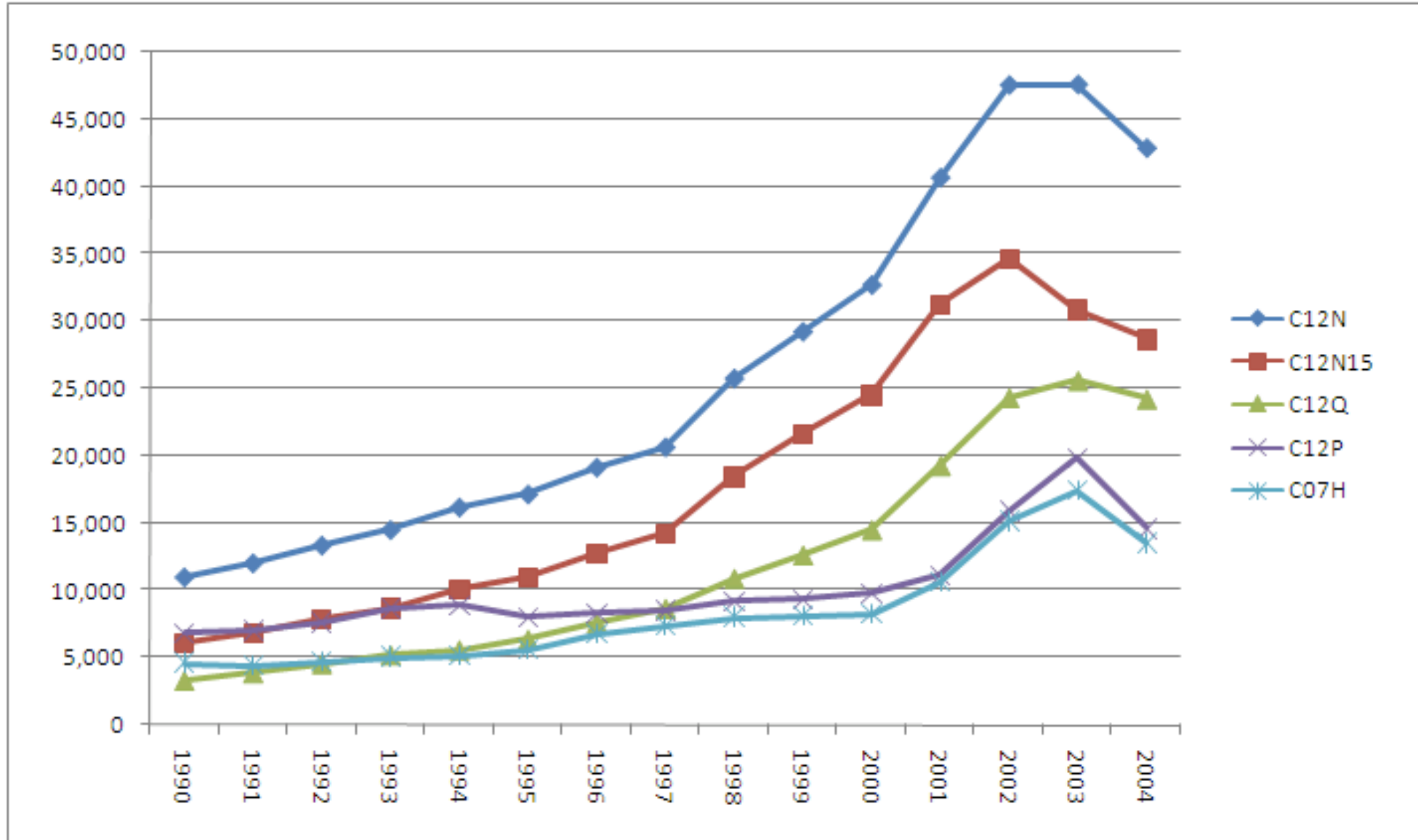


Synthetic genomes

[Bibliographic data](#)[Description](#)[Claims](#)[Mosaics](#)[Original document](#)[INPADOC legal status](#)**Publication number:** US2007264688**Publication date:** 2007-11-15**Inventor:** VENTER J C (US); SMITH HAMILTON O (US); HUTCHISON CLYDE A III (US)**Applicant:****Classification:****- international:** *C07H21/04; C12N5/06; C12P1/04; C07H21/00; C12N5/06; C12P1/04;***- European:****Application number:** US20060635355 20061206**Priority number(s):** US20060635355 20061206; US20050742542P 20051206[View INPADOC patent family](#)[View list of citing documents](#)[Report a data error here](#)

Abstract of **US2007264688**

Methods are provided for constructing a synthetic genome, comprising generating and assembling nucleic acid cassettes comprising portions of the genome, wherein at least one of the nucleic acid cassettes is constructed from nucleic acid components that have been chemically synthesized, or from copies of the chemically synthesized nucleic acid components. In one embodiment, the entire synthetic genome is constructed from nucleic acid components that have been chemically synthesized, or from copies of the chemically synthesized nucleic acid components. Rational methods may be used to design the synthetic genome (e.g., to establish a minimal genome and/or to optimize the function of genes within a genome, such as by mutating or rearranging the order of the genes). Synthetic genomes of the invention may be introduced into vesicles (e.g., bacterial cells from which part or all of the resident genome has been removed, or synthetic vesicles) to generate synthetic cells. Synthetic genomes or synthetic cells may be used for a variety of purposes, including the generation of synthetic fuels, such as hydrogen or ethanol.

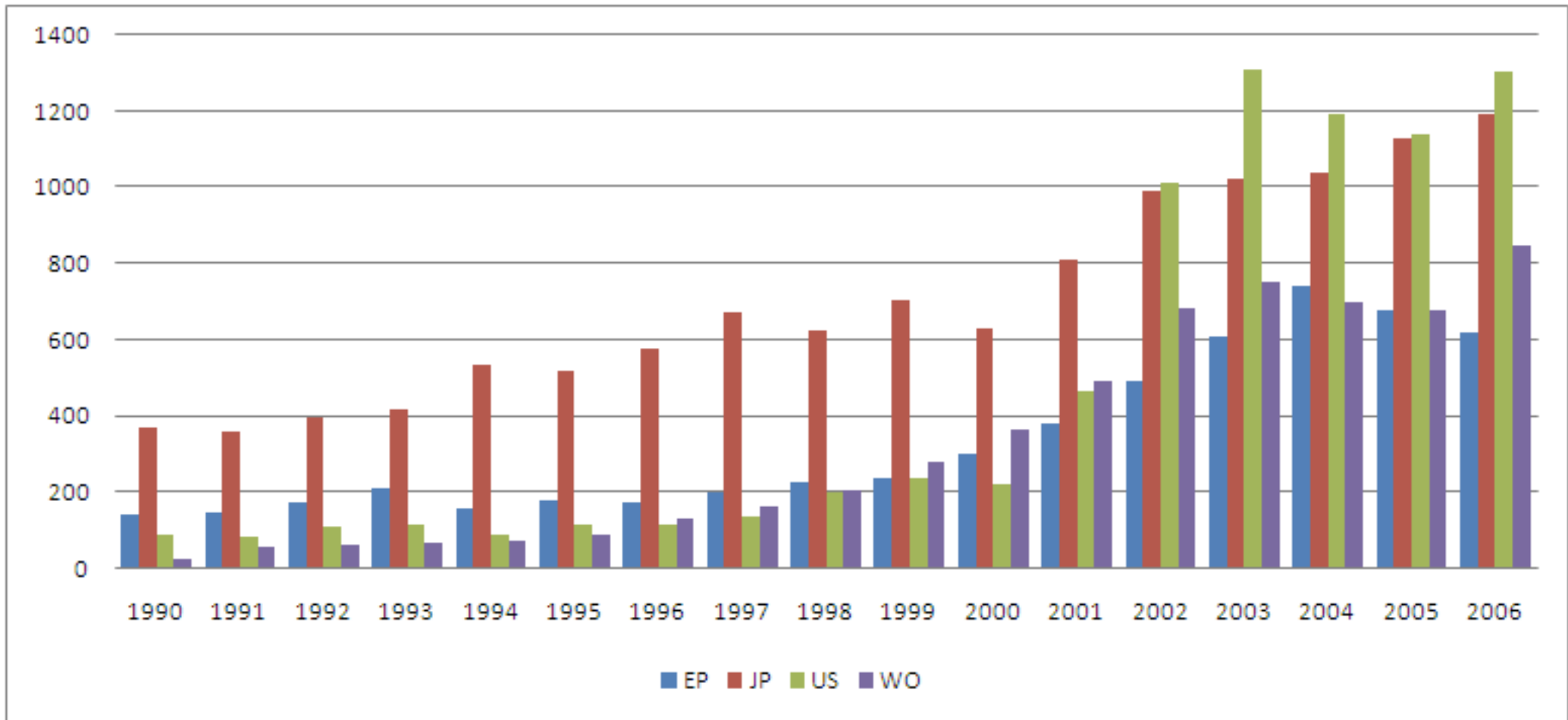


Main Indicators Biotechnology

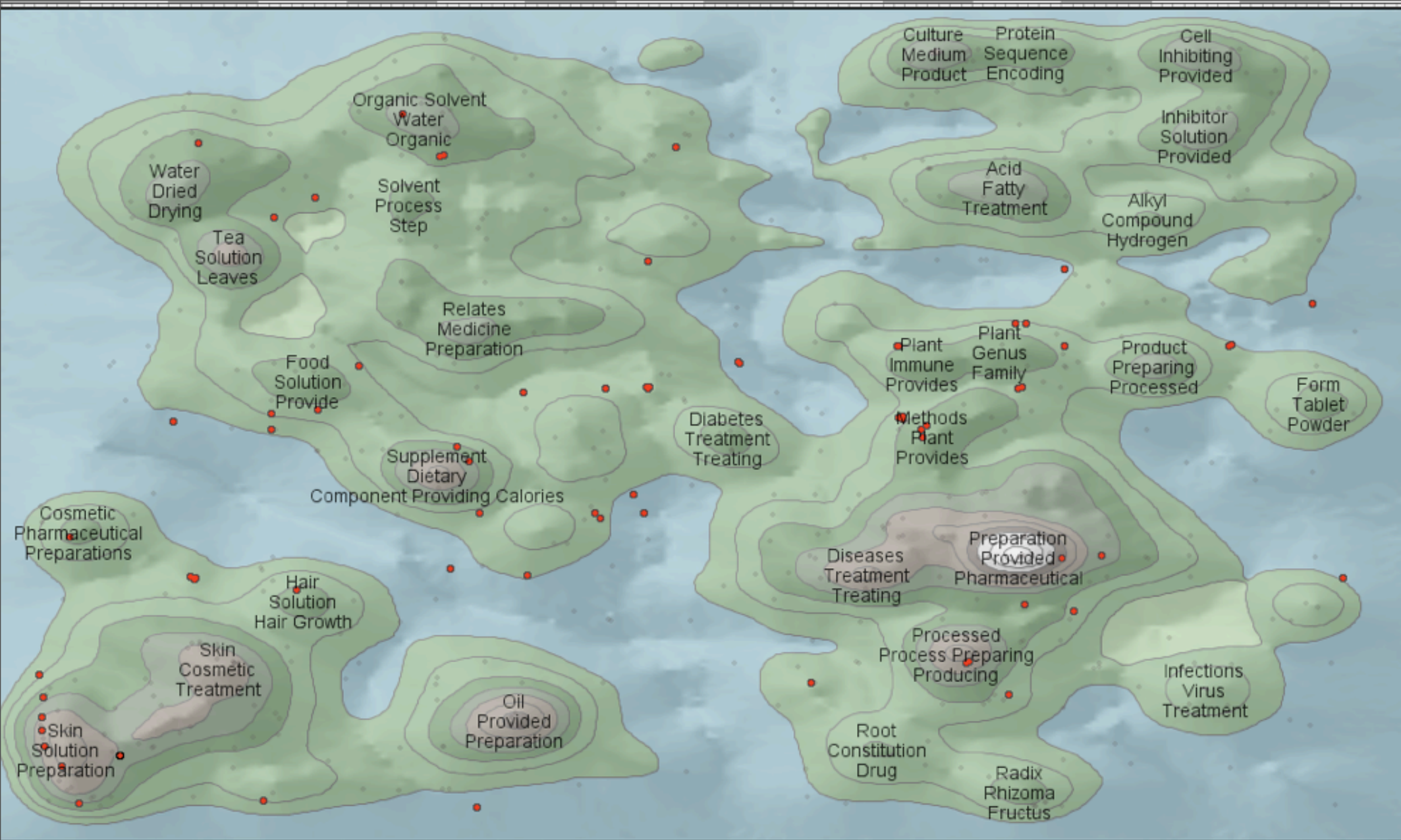
Landscaping and Interrogating Indicators

- ▶ Use commercial and free ICT tools to interrogate indicators;
- ▶ Large scale landscape mapping (i.e. Micropatent Aureka); provides an interactive landscape;
- ▶ TDA: query construction, who, what where;
- ▶ Computational Linguistics (i.e. OUP Wordsmith Tools)
- ▶ Indicators can be combined with detailed landscaping and analytics;
- ▶ But... classifiers may require further elaboration.

Traditional Plant Medicines (A6IK35/78 and A6IK36)



Patent Publication Trends - Publication Year
(Country/Instrument)



Indicator Landscape View
 (33,610 Documents Clustered on Titles & Abstracts)



Top 10 Topics

Top Documents

[WO2003030921A1](#)

Document ID:

WO2003030921A1.

Title: Methods for producing agrimonia extract with improved activity against hepatitis B virus and pharmaceutical and food compositions containing said extract.

Assignees: AHN DONG-H
LEE YOUNG-SUNG YOON

[EP1180006A4](#)

Document ID:

EP1180006A4.

Title: COMPOSITIONS AND METHODS FOR THEIR PREPARATION FROM LEPIDIUM.

Assignees: PURE WORLD BOTAN INC.

Abstract: ...

1-10 / 115

Previous 10 Next 10

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Summary Document

Topics	#
Blood Ch...	7
Improving...	6
Disorder	3
Active Ing...	2
Skin	2
Chapped	1
Pain	1
Drink	1
Cosmetic	1
Food	1
Raw	1
Genus	1
Provides, ...	1
Family	1
Belonging	1
Drug	1
Plant	1

Document ID: WO2005094860A1

Title: AGENT IMPROVING PERIPHERAL BLOOD FLOW

Assignees: KISO YOSHINOBU
MATSUMOTO YUTA
SUNTORY LTD
YOSHIDA YUJI

Application Date: 03/31/2005

Publication Date: 10/13/2005

Abstract:

It is intended to provide an efficacious agent for improving peripheral blood flow which can improve symptoms caused by peripheral blood flow disorders (chill, palsy, pain, skin troubles, etc.) or skin disorders accompanying peripheral blood flow disorders (cold injury, frostbite, raw with cold, chap, etc.) and has no side effect. More specifically speaking, an agent for improving peripheral blood flow which contains, as the active ingredient, an extract of a plant belonging to the family *Cruciferae* and the genus *Lepidium*, still specifically, an agent for improving peripheral blood flow which contains, as the active ingredient, an extract of maca (*Lepidium myenii Walp*); and foods, drinks, cosmetics or drugs containing the agent for improving peripheral blood flow.

Original Document

Topic Search Aureka Search Grouped Results TimeSlices

Cell
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Tablet
Powder

Infections
Virus
Treatment

Thomson Data Analyzer - [A61K357836-1990-2007-Subdataset-June-9-2007]

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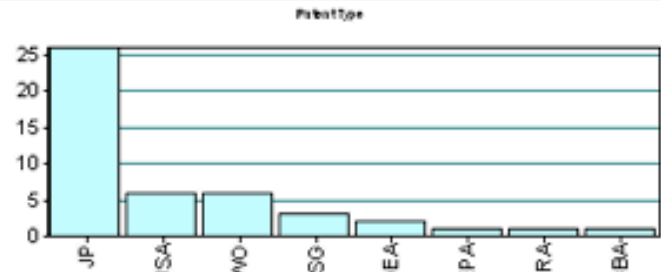
q1 q2 q3 q4 q5 q6 q7 q8 q9

Title

46 Items, 1 Selected

- UTILISATION D'UN EXTRAIT DE MACA POUR PROTEGER LA MICR...
- Treatment of sexual dysfunction with an extract of Lepidium me...
- TESTOSTERONE-INCREASING COMPOSITION, TESTOSTERONE-I...
- SUBSIDIARY FOOD FOR TREATING OR PREVENTING HYPERLIPEMIA
- SOPORUS Hypnotika/Sedativa und Psychopharmaka/Antidepressi...
- SKIN PREPARATION FOR EXTERNAL USE
- SKIN MOISTURIZING ABILITY IMPROVING AGENT
- SKIN EXTERNAL PREPARATION**
- SKIN CARE PREPARATION FOR EXTERNAL USE FOR SUMMER
- SKIN CARE PREPARATION
- SENSE ENHANCING TOPICAL GEL
- Pflanzenextrakte und deren Anwendung
- PERIPHERAL BLOOD STREAM IMPROVING AGENT
- NUTRITION SUPPLEMENTING FOOD FOR ENHANCING REPRODUC...
- METHODS AND COMPOSITIONS TO ENHANCE ENDOGENOUS IGF ...
- METHODS AND COMPOSITIONS TO ENHANCE ENDOGENOUS IGF ...
- METHOD FOR PRODUCING MACA EXTRACT
- IMPROVING AGENT OF INDEFINITE COMPLAINT ACCOMPANYING...
- HYALURONIC ACID ACUUMULATION-ACCELERATING AGENT
- Herbal preparation
- HAY FEVER INHIBITING TEA LEAF, TEA BAG AND COMPOSITION
- HAIR-TONIC AND HAIR-GROWING AGENT
- HAIR RESTORATION OR HAIR TONIC
- FUNCTIONAL FOOD MATERIAL USING TEA LEAF AS RAW MATERI...

Patent Type



Country	Count
JP	25
USA	6
WO	6
USG	3
DEA	2
EPA	1
FRA	1
GBA	1

	# Records	# Instances	Abstract (NLP) (Ph
1	9	11	genus Lepidium
2	6	9	Lepidium Meyenii Walp
3	6	6	Lepidium plant material
4	4	4	Lepidium fatty acid component
5	4	4	Lepidium sterol component
6	4	4	Yamakai
7	3	3	Lepidiummee yenii
8	2	2	Lepidium
9	2	2	maca Lepidium meyenii Walp
10	2	4	residual Lepidium meyeniiroot material
11	1	1	contacting Lepidium meyenii roots
12	1	1	contacting Lepidium meyeniiroots
13	1	1	cromakalm
14	1	1	Cruciferae Lepidium
15	1	1	fromi e y our , Na t material
16	1	1	gewonnene seelsche Ausgeglichenheit b
17	1	1	herstellung eines pflanzlichen Hypnotika/S
18	1	1	l'extrait de maca utilis est obtenu par broya
19	1	1	least Maca Lepidium meyenii-Walp
20	1	1	Lepidium meyenii
21	1	1	Lepidium meyenii extract
22	1	1	Lepidium meyenii root extract
23	1	1	Lepidium meyenii roots
24	1	1	Lepidium meyenii W used therein.COPYRIG
25	1	1	Lepidium meyenii-Walp,Cruciferae
26	1	1	Lepidium meyeniiroots
27	1	1	Lepidium Sabivum
28	1	1	Lepidiummecenii
29	1	1	Maca Lepidium meyenii
30	1	1	Maca Lepidium meyenii Walp

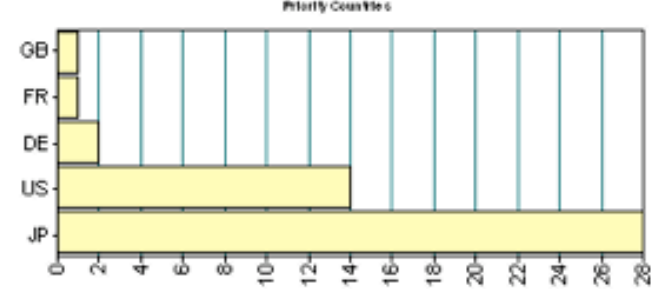
List::Abstract (NLP) (Ph

A61K357836... maca sampl...

Patent Assignees (Cleaned)

6	■■■	PURE WORLD BOTAN INC
5	■■■	SUNTORY LTD
4		UNKNOWN
3	■■■	HIROSE YUKIHIRO
3	■■■	TOWA CORP
2	↑	KAO CORP
2	■■■	NAT AGRICULTURE & BIO ORIENTED
2	■■■	NATUREX
2	■■■	SANTERRA PHARMACEUTICALS INC
2	■■■	SASAKI CO

Priority Countries



Country	Count
GB	1
FR	1
DE	2
US	14
JP	28

International Classification (Oldham)

36		A61K: Medical Or Veterinary Science; Hygiene -> Prepar
28	■■■	A61P: Medical Or Veterinary Science; Hygiene -> Therap
20	■■■	A23L: Foods Or Foodstuffs; Their Treatment, Not Covere
9	■■■	C07C: Organic Chemistry -> Acyclic Or Carbocyclic Com
5	■■■	A23G: Foods Or Foodstuffs; Their Treatment, Not Covere
5		A61Q: Medical Or Veterinary Science; Hygiene -> Use Of
5	■■■	C12G: Biochemistry; Beer; Spirits; Wine; Vinegar; Microbi
4		A01N: Agriculture; Forestry; Animal Husbandry; Hunting;
4	■■■	A23F: Foods Or Foodstuffs; Their Treatment, Not Covere
3		C07D: Organic Chemistry -> Heterocyclic Compounds

For Help, press F1

NUM

Patent Analytics: Thomson Data Analyzer

Concord

File Edit View Compute Settings Windows Help

N Concordance

1 further includes effective amounts of BEC and *Lepidium meyenii* ("Maca"), a traditional Peruvian aphrodisiac. Additionally, Maca has been

2 the plant genus is *Lepidium*. *Lepidium meyenii*, commonly called maca or Peruvian ginseng, is a perennial plant having a fleshy, edible,

3 Nutrition. Maca is a plant also known as *Lepidium meyenii*. Peruvian maca root is a vegetable root or tuber related to the potato and the

4 Chemistry 1994;49:347-9) and Walker (Walker M, Effect of Peruvian Maca on hormonal functions. Townsend Letter for Physicians 1998;

5 the plant genus is *Lepidium*. *Lepidium meyenii*, commonly called maca, or Peruvian ginseng, is a perennial plant having a fleshy, edible,

6 Bark, 140 mg Muria Puama, 140 mg Wild Yam, 140 mg Peruvian Maca, 96 mg Ipriflavone (soy), 66 mg Chaste Berry, 66 mg Avena Sativa,

7 tea, grape seed extract along with an aphrodisiac such as peruvian maca. Certain other ingredients may be omitted, that are present in the

8 the plant genus is *Lepidium*. [0003] *Lepidium meyenii*, commonly called maca or Peruvian ginseng, is a perennial plant having a fleshy, edible,

9 the plant genus is *Lepidium*. [0003] *Lepidium meyenii*, commonly called maca or Peruvian ginseng, is a perennial plant having a fleshy, edible,

10 the plant genus is *Lepidium*. *Lepidium meyenii*, commonly called maca or Peruvian ginseng, is a perennial plant having a fleshy, edible,

11 may also be cited of: maca, Peruvian ginseng, quechua; in Spanish: maca, maka, maca-maca and in Quechua: ayak chichica, ayak willku,

12 Among its vernacular names the English names may also be cited of: maca, Peruvian ginseng, quechua; in Spanish: maca, maka, maca-maca

13 composition in claim 1 including an effective amount of Peruvian maca and homey goat weed. 6. A fertility-enhancing composition of

14 ay Green Tea 10 mg/day 2-50 mg/day Peruvian Maca 200 mg/day 50-400 mg/day Glucosamine Sulfate 200

15 the skin, colon, prostate, uterus and cervix, among other areas. Peruvian Maca has shown some benefit to woman and men of all ages, promoting

16 composition in claim 1 including an effective amount of Peruvian maca. 5. The fertility-enhancing composition in claim 1 including an

17 ay Green Tea 15 mg/day 2-50 mg/day Peruvian Maca 200 mg/day 50-400 mg/day Homy Goat 200 mg/da

18 sexual functioning and insures vaginal lubrication, such as Peruvian Maca, a compound to reduce vaginal dryness, such as Ipriflavone 99%

19 with the disorder. *Lepidium meyenii* (Brassicaceae), known as Maca or Peruvian ginseng, is a perennial crop of Peru with a long history.

20 the plant genus is *Lepidium*. *Lepidium meyenii*, commonly called maca or Peruvian ginseng, is a perennial plant having a fleshy, edible,

21 [0022] Maca is a plant also known as *Lepidium meyenii*. Peruvian maca root is a vegetable root or tuber related to the potato and the

22 ay Green Tea 15 mg/day 2-40 mg/day Peruvian Maca 200 mg/day 50-400 mg/day Glucosamine Sulfate 200

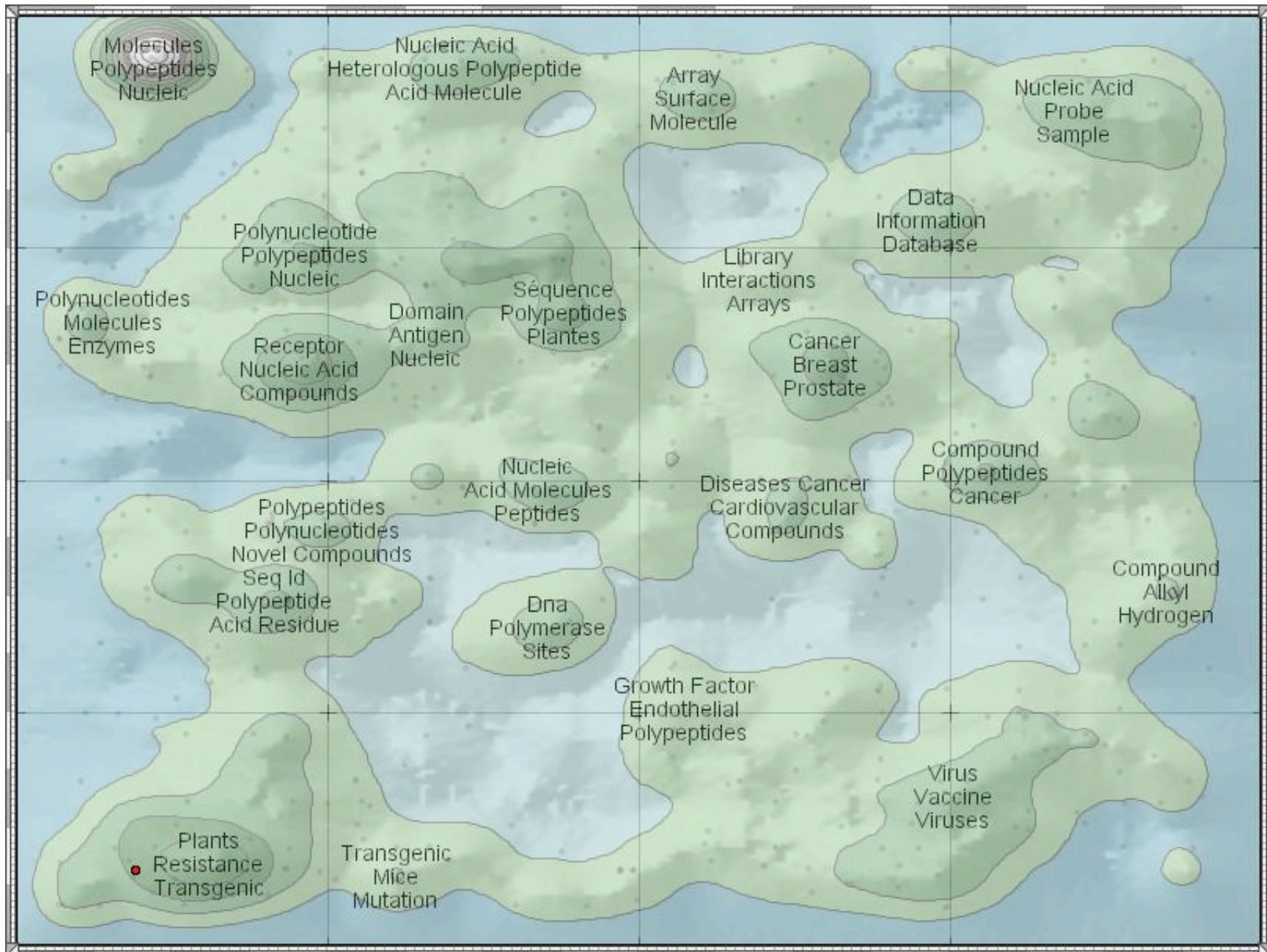
23 the plant genus is *Lepidium*. [0003] *Lepidium meyenii*, commonly called maca or Peruvian ginseng, is a perennial plant having a fleshy, edible,

24 but are not limited to: Catuaba Bark, Muria Puama, Wild Yam, Peruvian Maca, Ipriflavone (soy), Chaste Berry, Avena Sativa, and Natural Vitamin

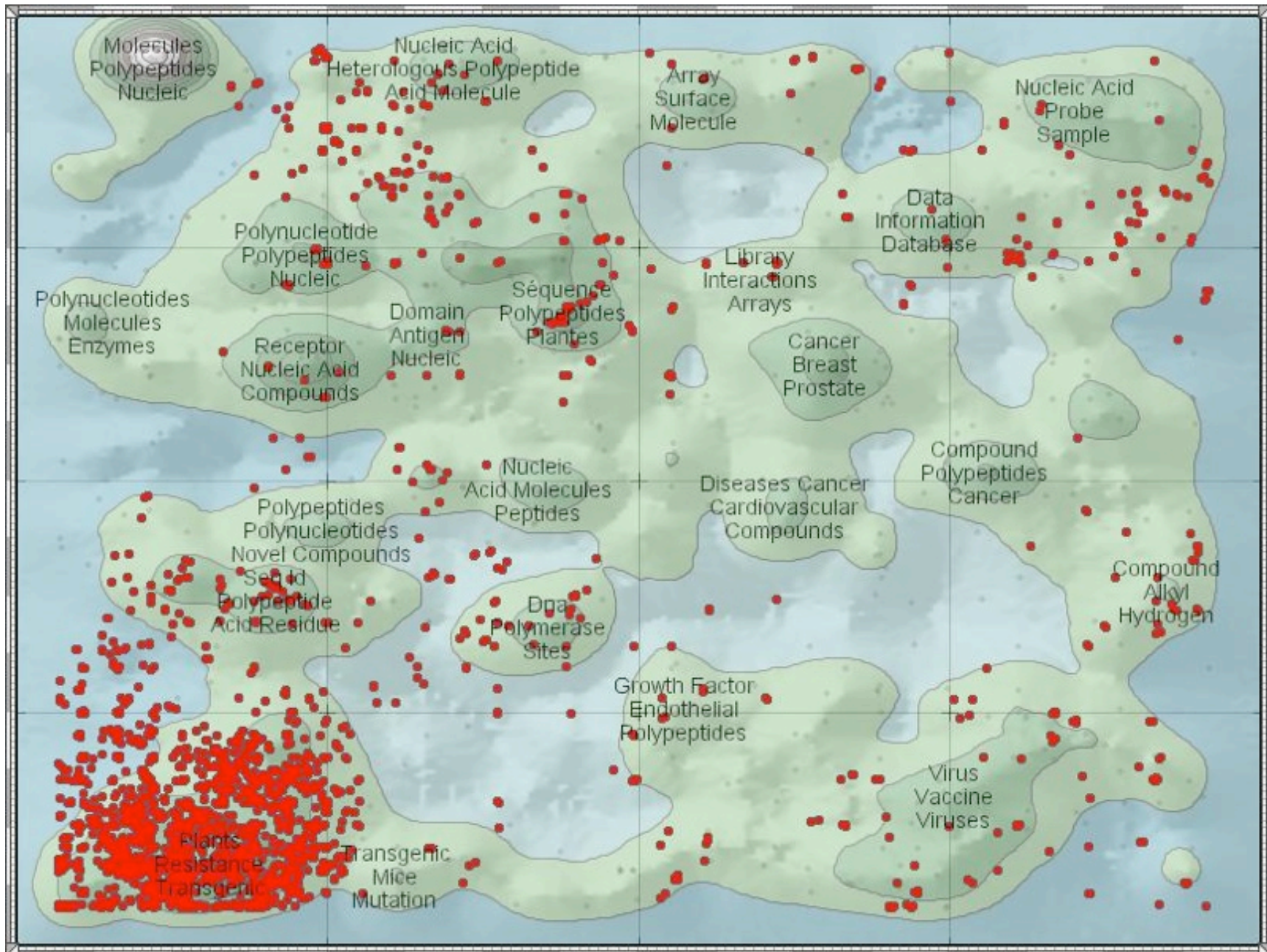
concordance collocates plot patterns clusters filenames source text notes

2,086 Set he composition further includes effective amounts of BEC and *Lepidium meyenii* ("Maca"), a traditional Peruvian aphrodisiac. Additionally, Maca has been shown to

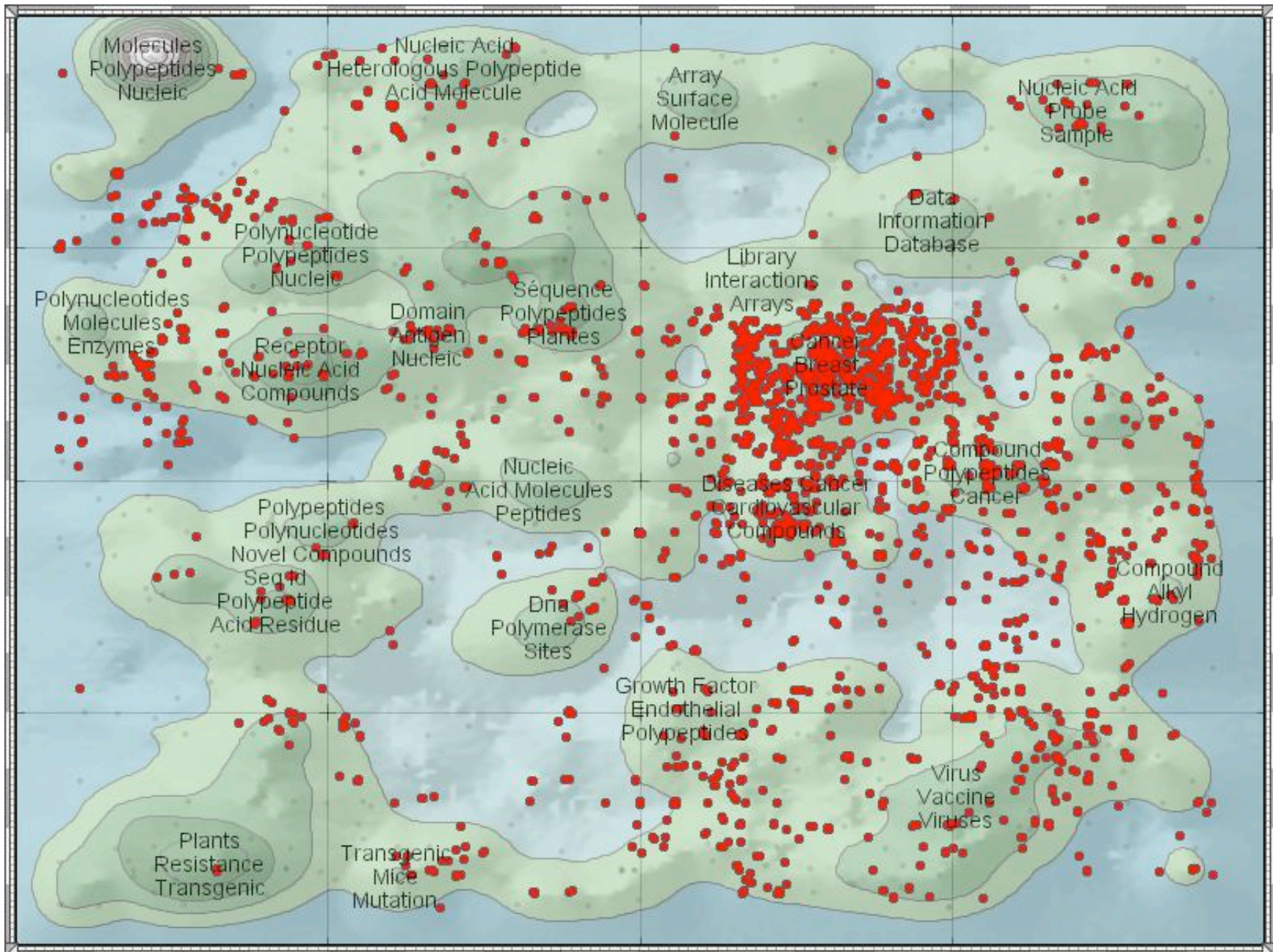
Corpus Linguistics: Whole Text Analysis (Wordsmith)



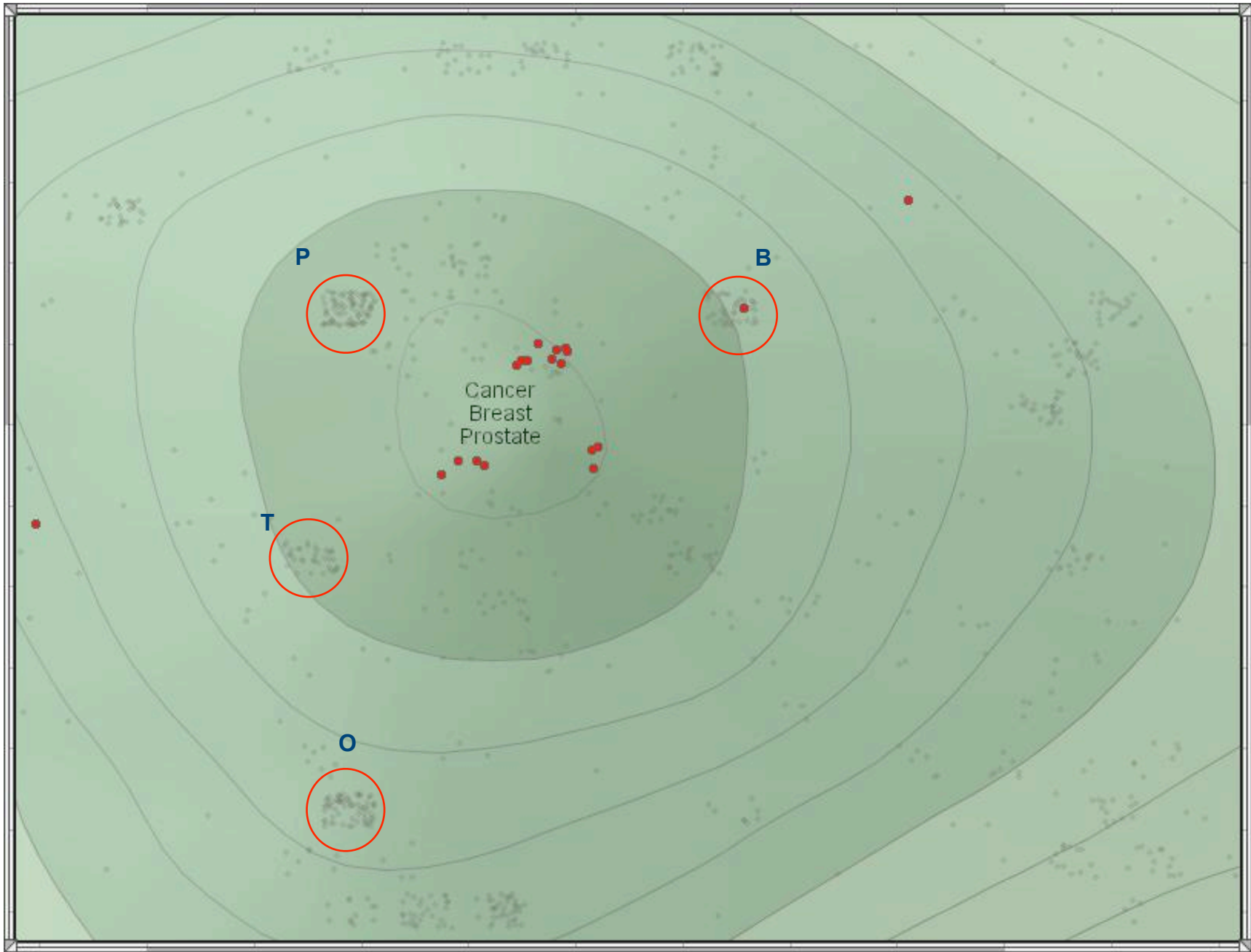
Draft Patent Landscape
 Genome 2001-2003. Sample 50,717 Publications US, EP, WO, JP, GB, DE, FR



Draft Patent Landscape:
 Plant Genomics and Biotechnology 2001-2003



Draft Patent Landscape
Cancer and Genomics 2001-2003



Cancer and Patent Thickets?: P - 30; B - 21 ; T- 19 ; O – 29. Red – Myriad Genetics

Methodological Considerations

- ▶ So... we can provide the quantitative context (indicators) - PATSTAT as a new tool;
- ▶ We can interrogate indicators as textual landscapes for who, what, where, how in a verifiable and repeatable form down to individual words;
- ▶ Corpus linguistics an important emerging tool;
- ▶ Analytics capacity moving online (and we are clearly seeing that already i.e. stats, text tagging);
- ▶ A need for combined 'open' methods rather than pure black box 'expert' methods as a basis for trust.

Background Info

- ▶ Global Status and Trends in Intellectual Property Claims:
 - ▶ Genomics, proteomics and biotechnology (2004);
 - ▶ Microorganisms (2005);
 - ▶ Mapping Global Status and Trends (2006);
 - ▶ Biodiversity and the Patent System: An introduction to research methods (2006);
 - ▶ Biodiversity and the Patent System: Towards International Indicators (2007).