Bureau d'étude: les cellules souches pluripotentes induites (iPSC)

BODY Marine
LEVY Claire
PUVANENDRARAJAH Thanusa

Tuteurs: DOUSSET Bernard
LAPORTE Léa

21.02.2013

SOMMAIRE

- Qu’est-ce que la veille technologique ?
- Les cellules iPS
- Analyse des données:
  - Publications
  - Brevets
  - Applications
  - Multi-bases
- Conclusion

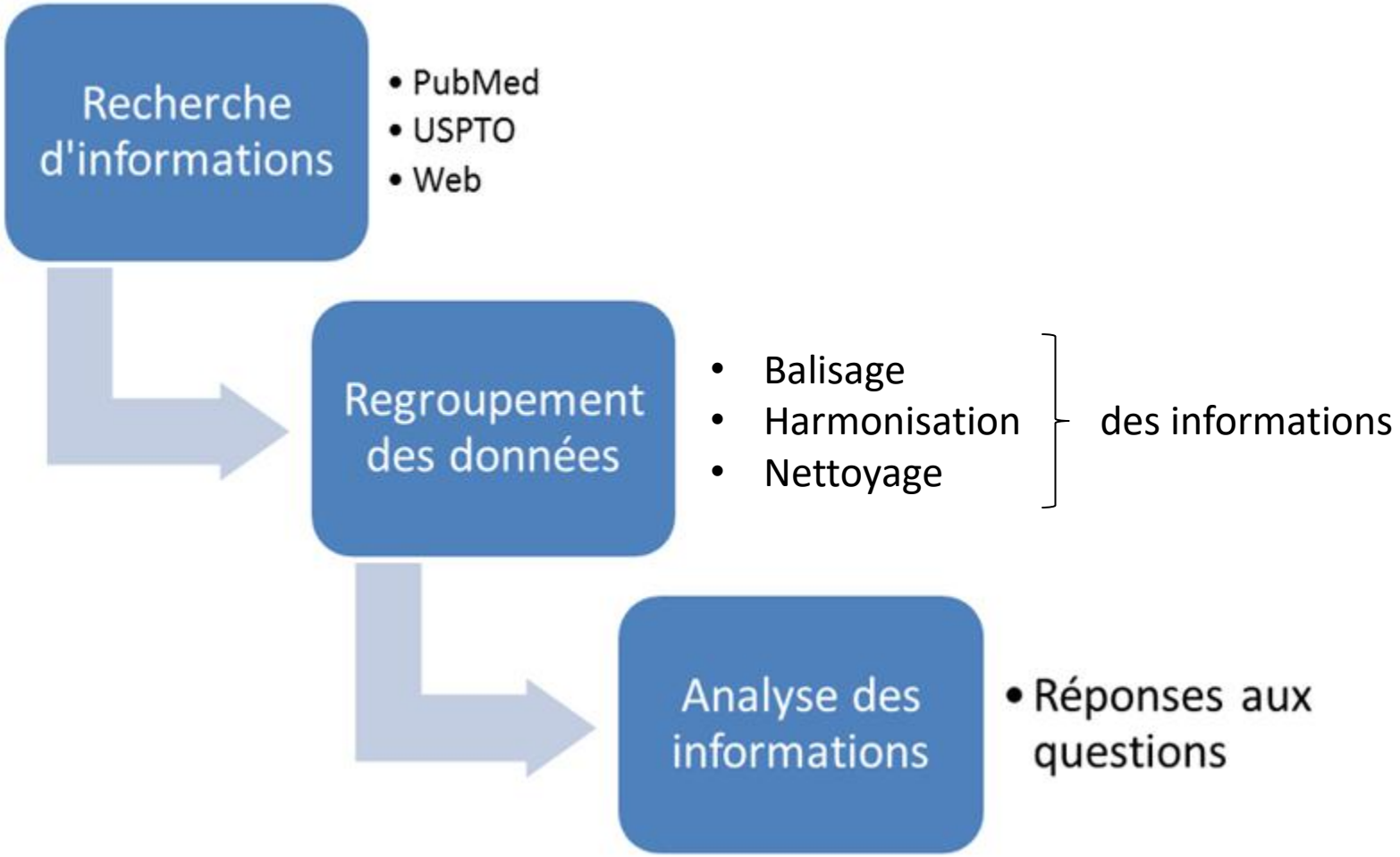
VEILLE TECHNOLOGIQUE

Observation de l'environnement technique, scientifique et technologique

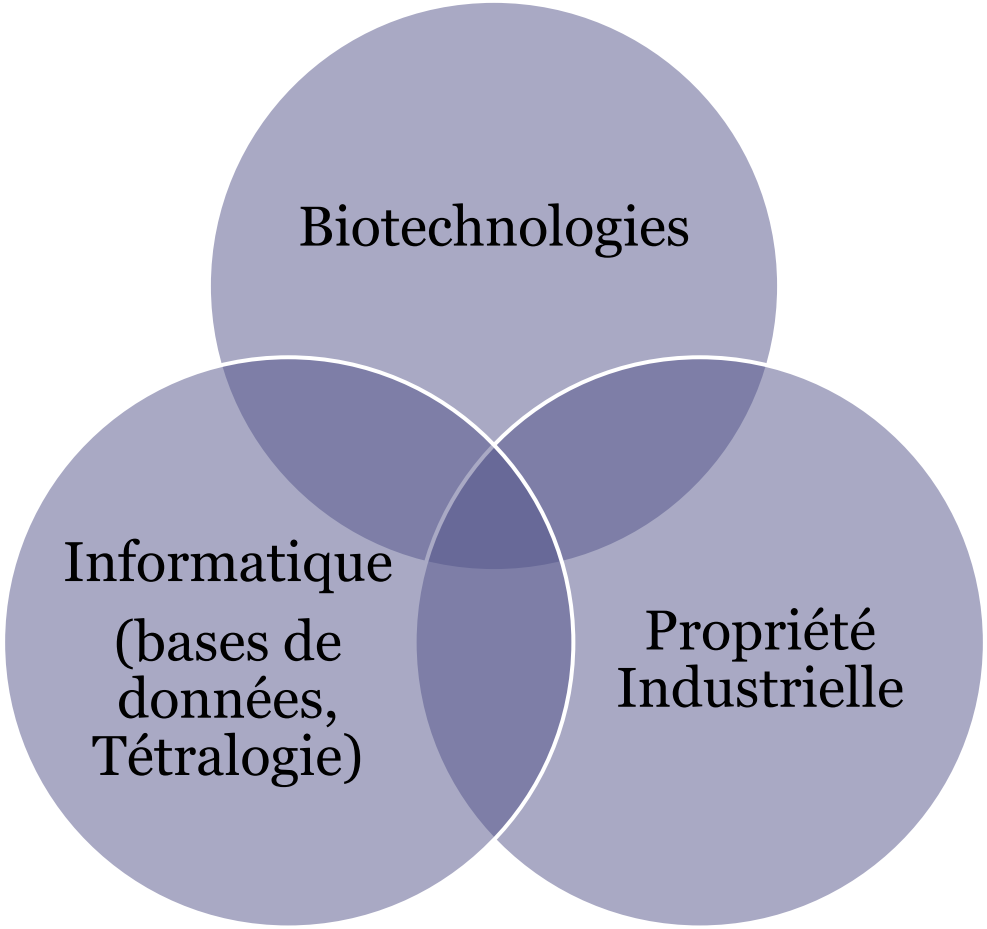
Collecter et exploiter les informations

Prise de décisions stratégiques

Les étapes du projet



Les outils utilisés



Cellules IPS

Pourquoi ce sujet?

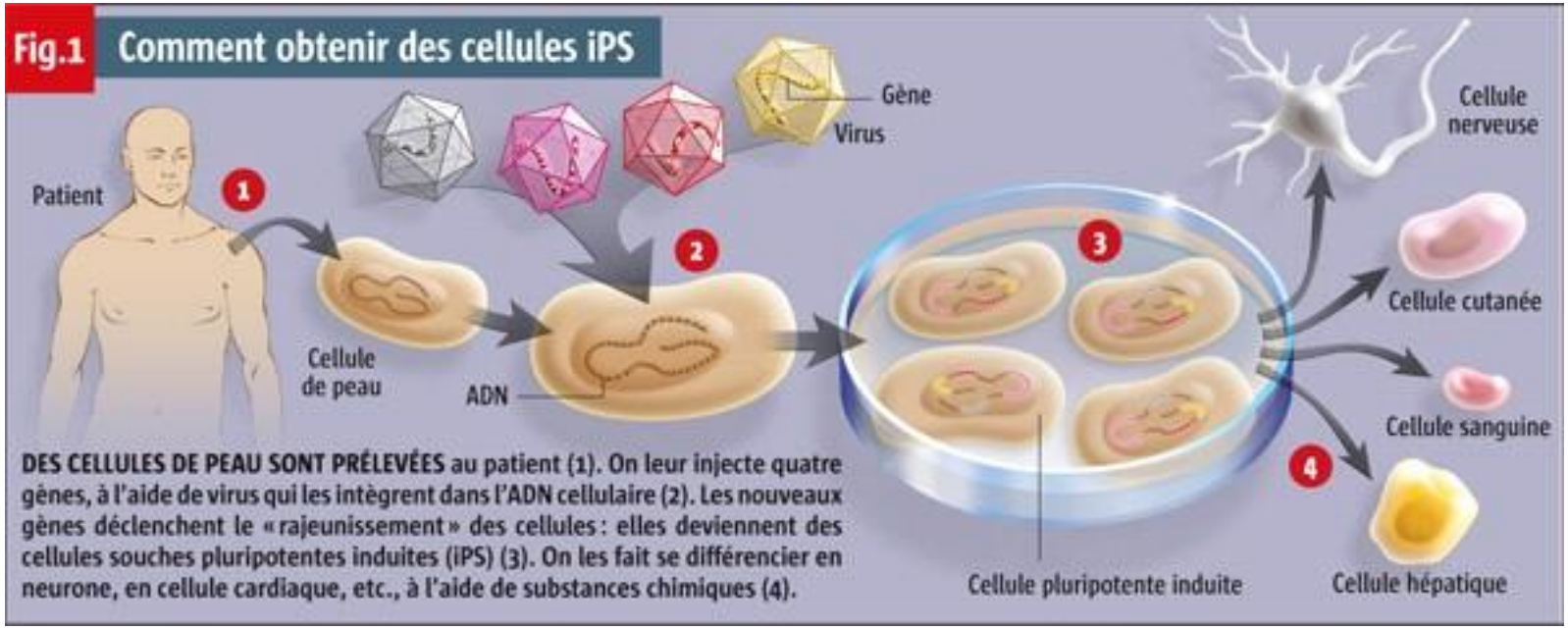
- ✓ Sujet récent en pleine expansion
- ✓ En rapport avec notre formation
- ✓ Prix Nobel de médecine 2012 = YAMANAKA S.

Cellules IPS

= issues de cellules adultes différenciées redevenues pluripotentes par des modifications génétiques

- Plusieurs types cellulaires
- Pas de problème éthique
- Pas de risque de rejet
- Perspectives thérapeutiques prometteuses

Cellules IPS



LES PUBLICATIONS

Méthodologie

Pubmed: recherche publications sur les iPSC

résultats: 1963 articles

Analyse des informations :

- Réseaux sociaux
- Répartition géographique

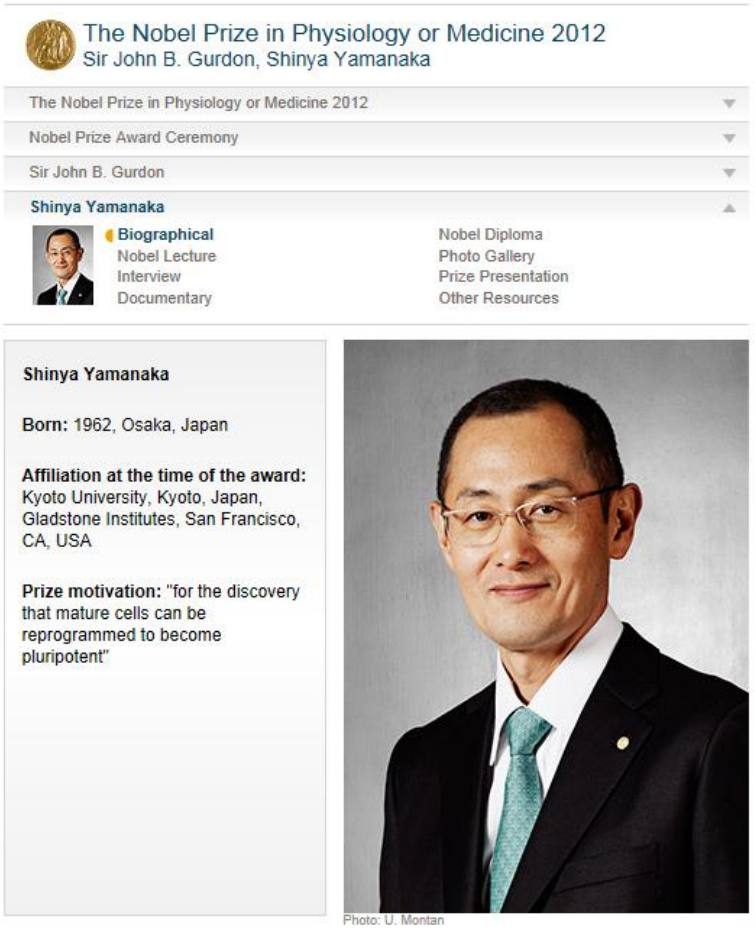
Les chercheurs

7114 auteurs comptabilisés

AU.indF

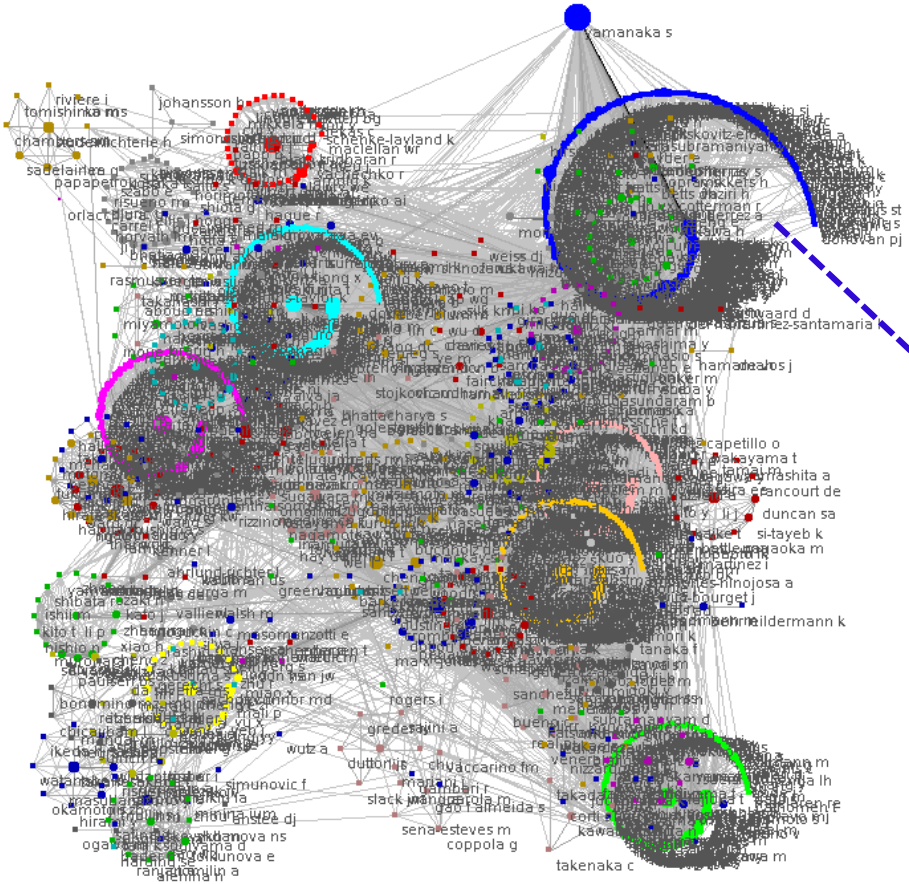
```
59  YAMANAKA S
33  DALEY GQ
27  IZPISUA BELMONTE JC
25  JAENISCH R
24  OKITA K
23  TAKAHASHI K
23  PARK IH
22  HOCHEDLINGER K
19  ZHANG Y
19  LI Y
18  PLATH K
18  LI W
18  BAHARVAND H
17  HESCHELER J
16  YU J
16  SCHOLER HR
16  LIU L
15  ZHANG X
15  OKANO H
15  NAKAGAWA M
```

YAMANAKA : 59 articles



http://www.nobelprize.org/nobel_prizes/medicine/laureates/2012/yamanaka.html

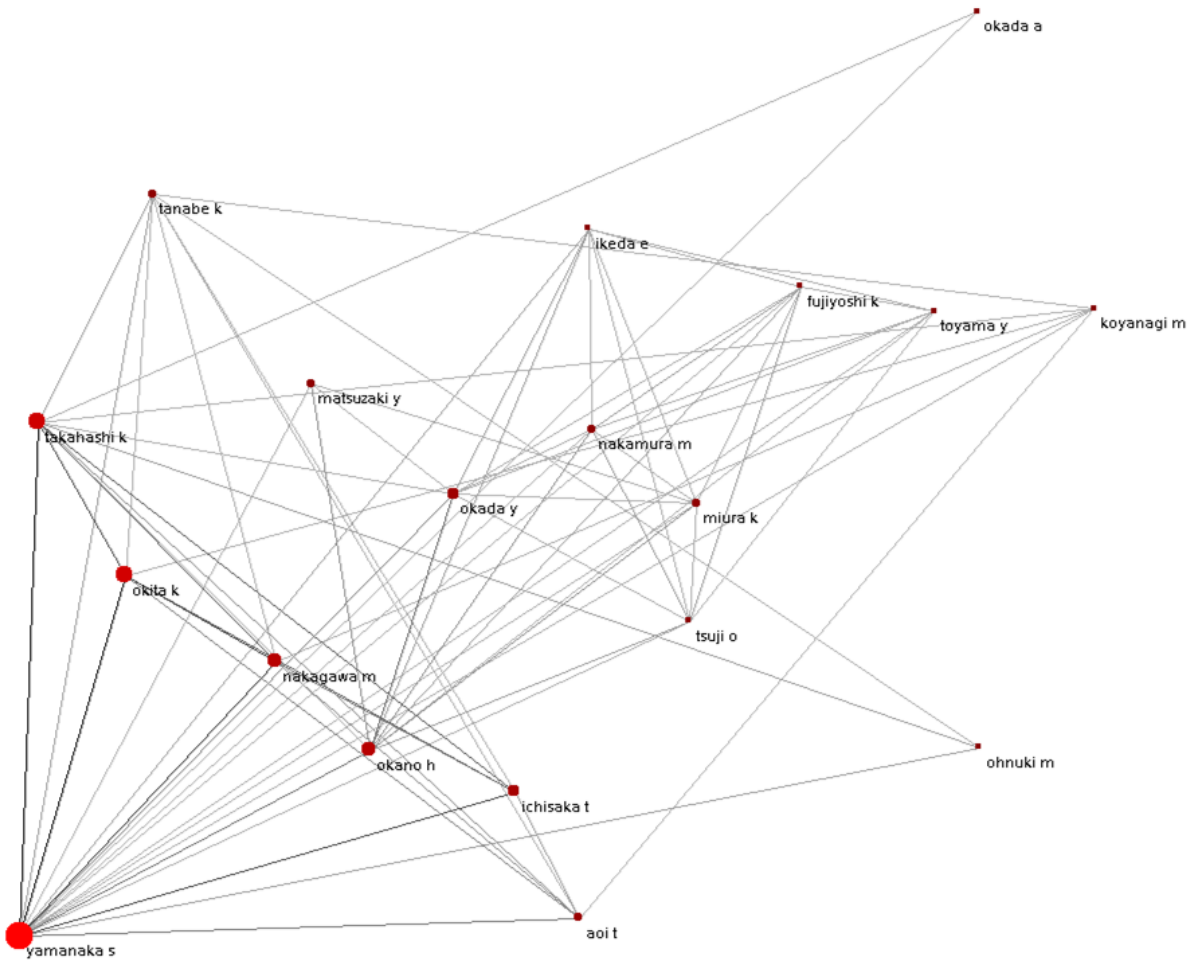
Les équipes de chercheurs



Croisement 2D AU-AU

Équipe de YAMANAKA

L'équipe de YAMANAKA



Research Divisions
Dept. of Reprogramming Science

Members

Professor

Shinya Yamanaka	

Specially Appointed Professors

Akira Ota	Kazuhiko Kaji
Hiromichi Mizuno	

Visiting Associate Professor

Toshiki Taya	

Lecturers

Yoshinori Yoshida	Masato Nakagawa
Keisuke Okita	Kazutoshi Takahashi

Assistant Professor

Akira Watanabe	

Researchers

Michiyo Koyanagi	Takahiro Sato
Akiko Fukuhara	Koji Tanabe
Kazuhisa Chonabayashi	Ren Shimamoto
Mari Ohnuki	Masahiro Nakamura
Naoki Amano	Kimiko Kato
Kenji Miki	

Technical Staffs

Tomoko Ichisaka	Megumi Narita
Nanako Takizawa	Aki Okada
Ran Shibukawa	Ikumi Kodanaka
Kazuyo Tamaki	Yasuko Matsumura
Misato Nishikawa	Tomomi Ito
Akiko Oishi	Yoshiko Sato

Répartition géographique

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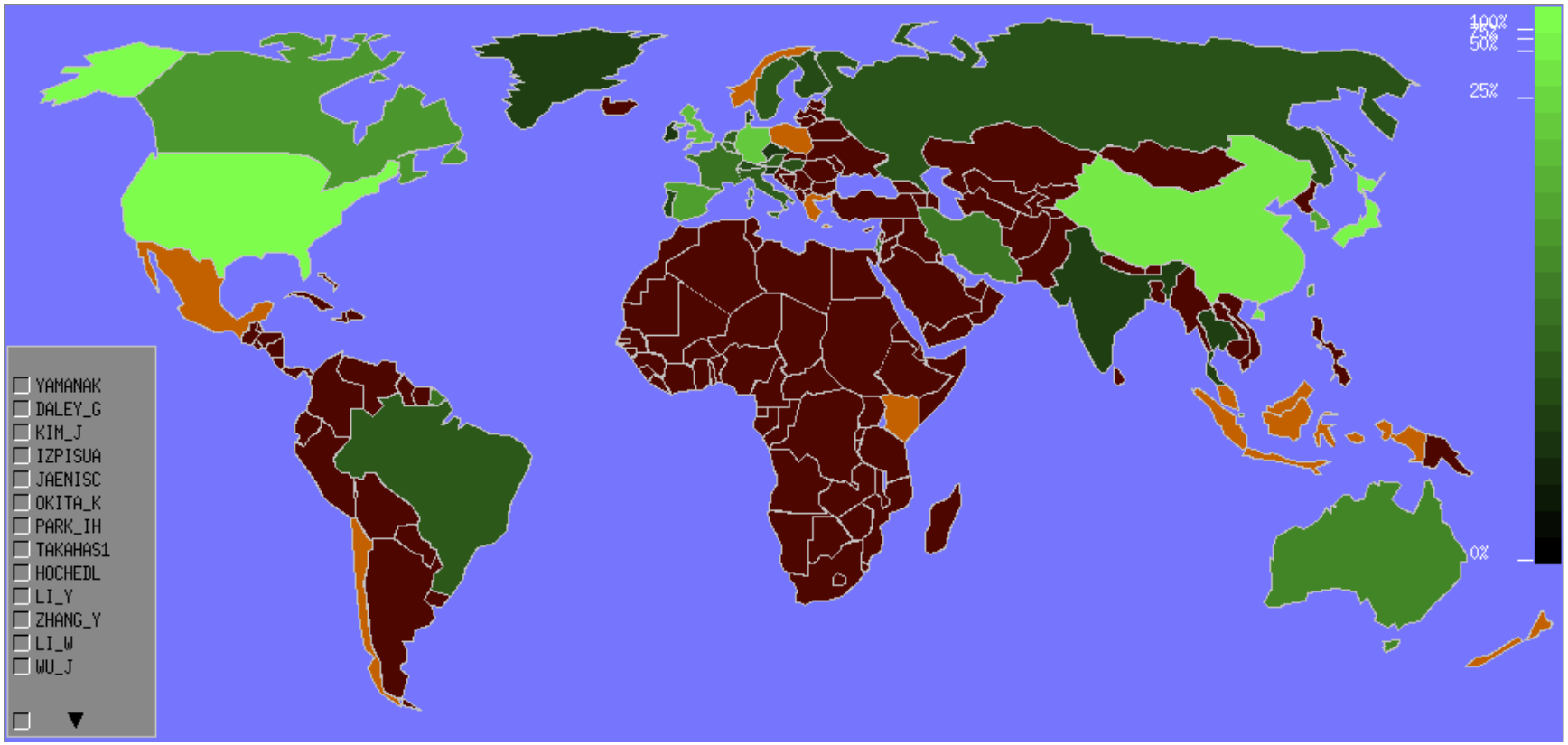
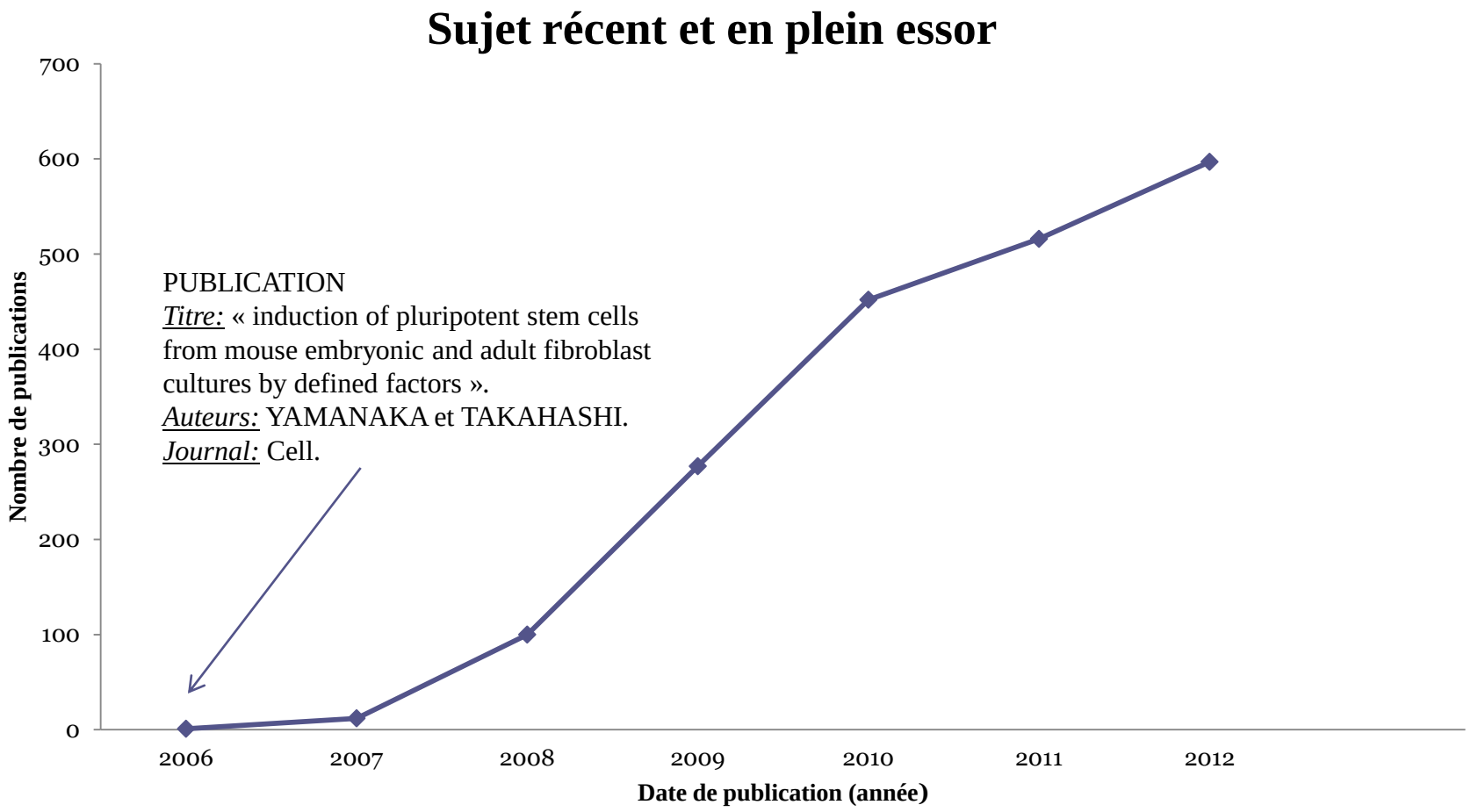


Evolution des publications dans le temps



LES BREVETS

Méthodologie

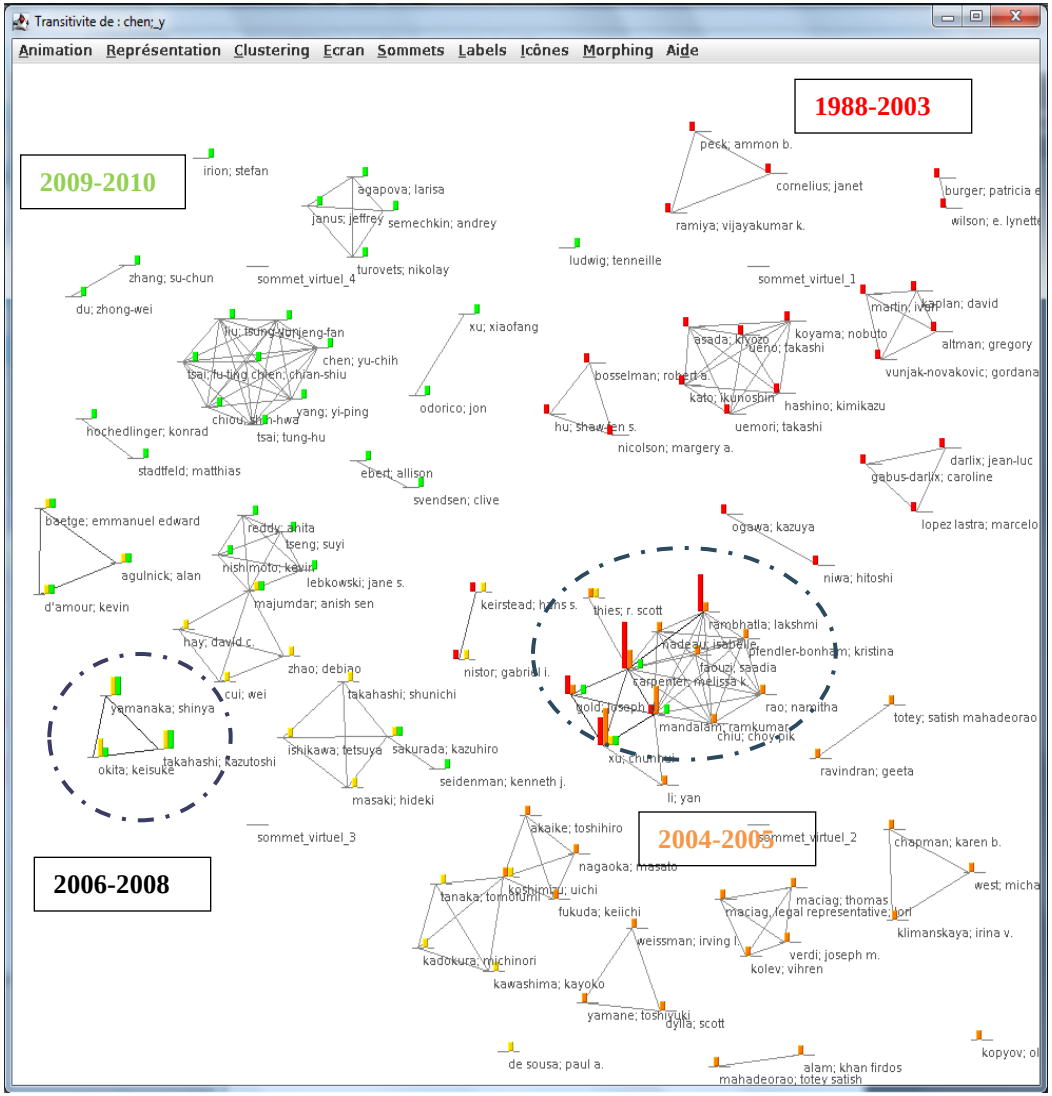
USPTO: recherche brevets sur les iPSC

résultats: 52 brevets

Analyse des informations :

- Réseaux sociaux
- Les alliances entre les sociétés
- Réseaux sémantiques

Les équipes d'inventeurs



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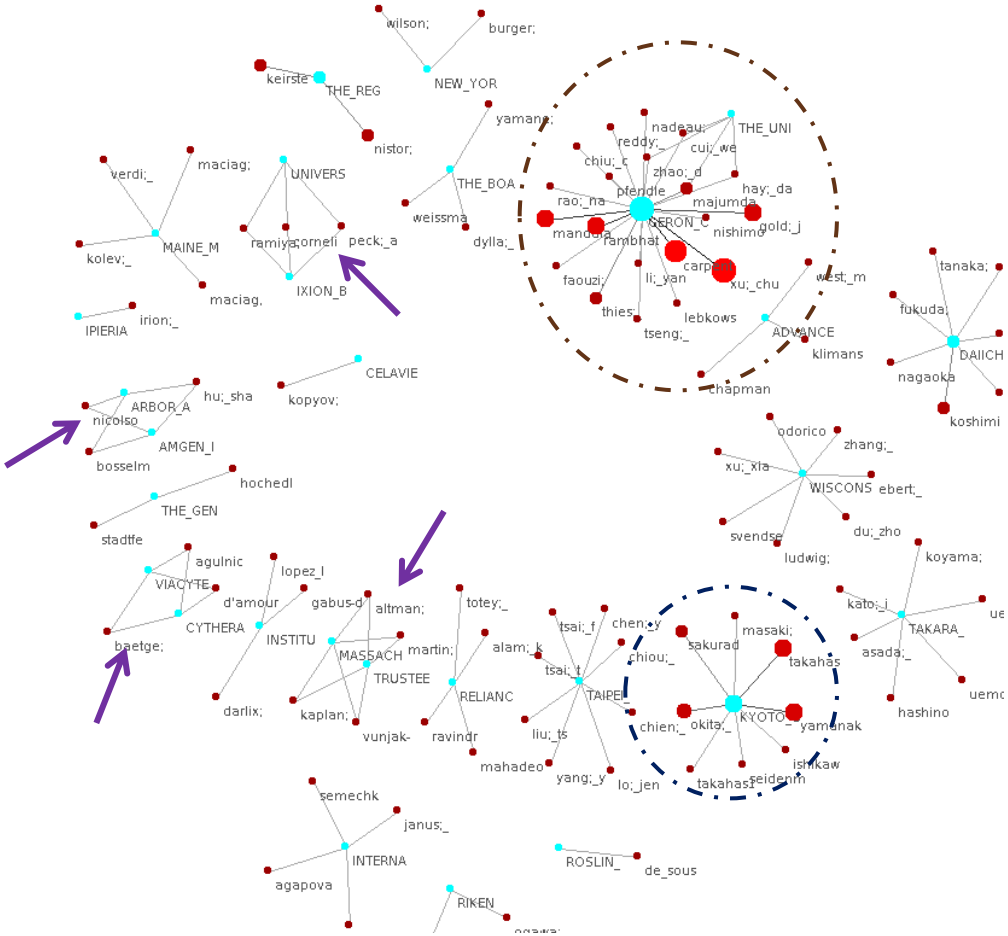
Équipe de CARPENTER et XU

Équipe de YAMANAKA

Les alliances entre les sociétés



Croisement 2D AU-CO

Alliance Géron Corporation et l'Université d'Edinburgh

Réseaux sémantiques

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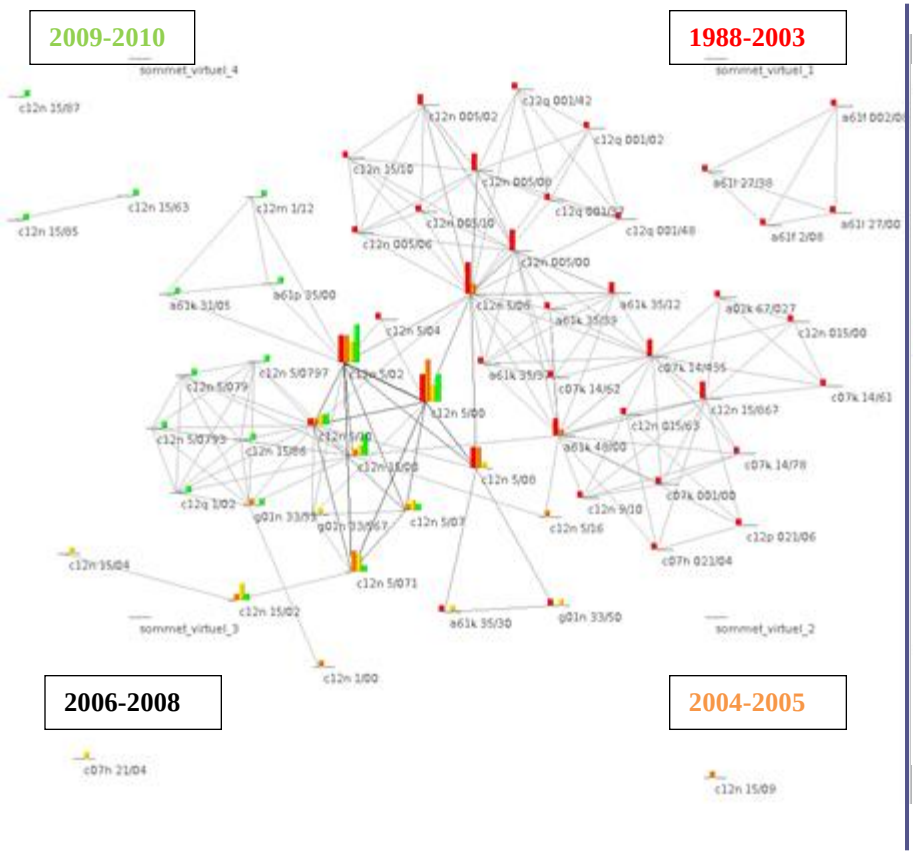

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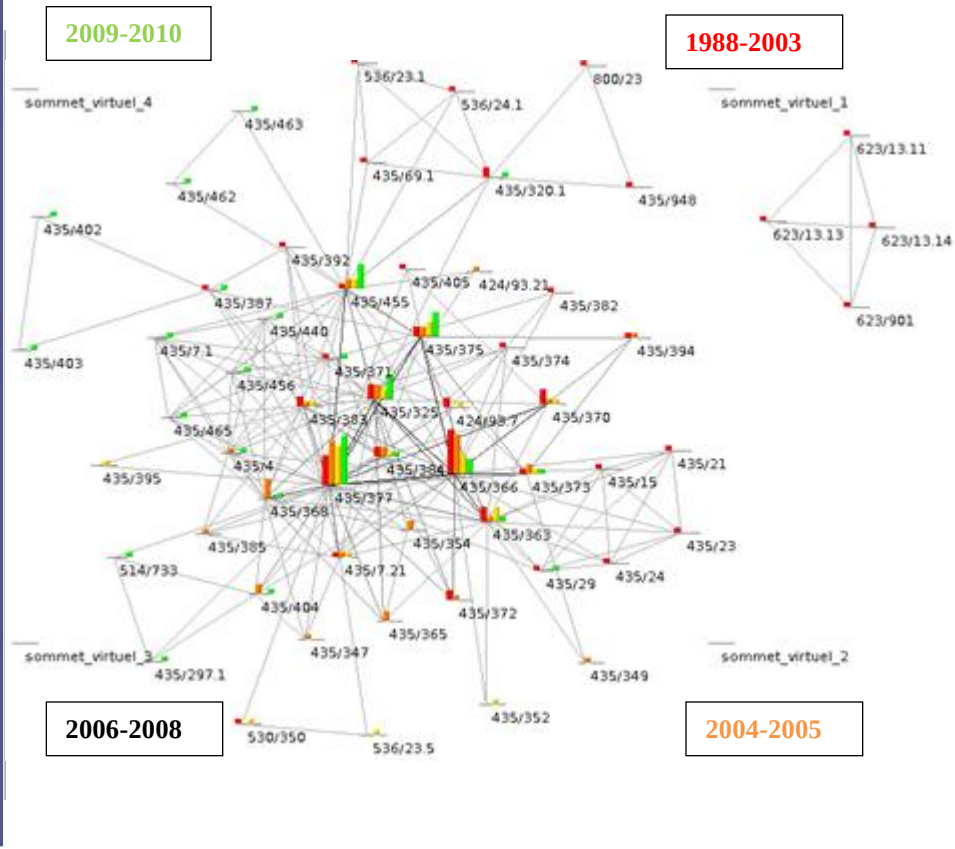


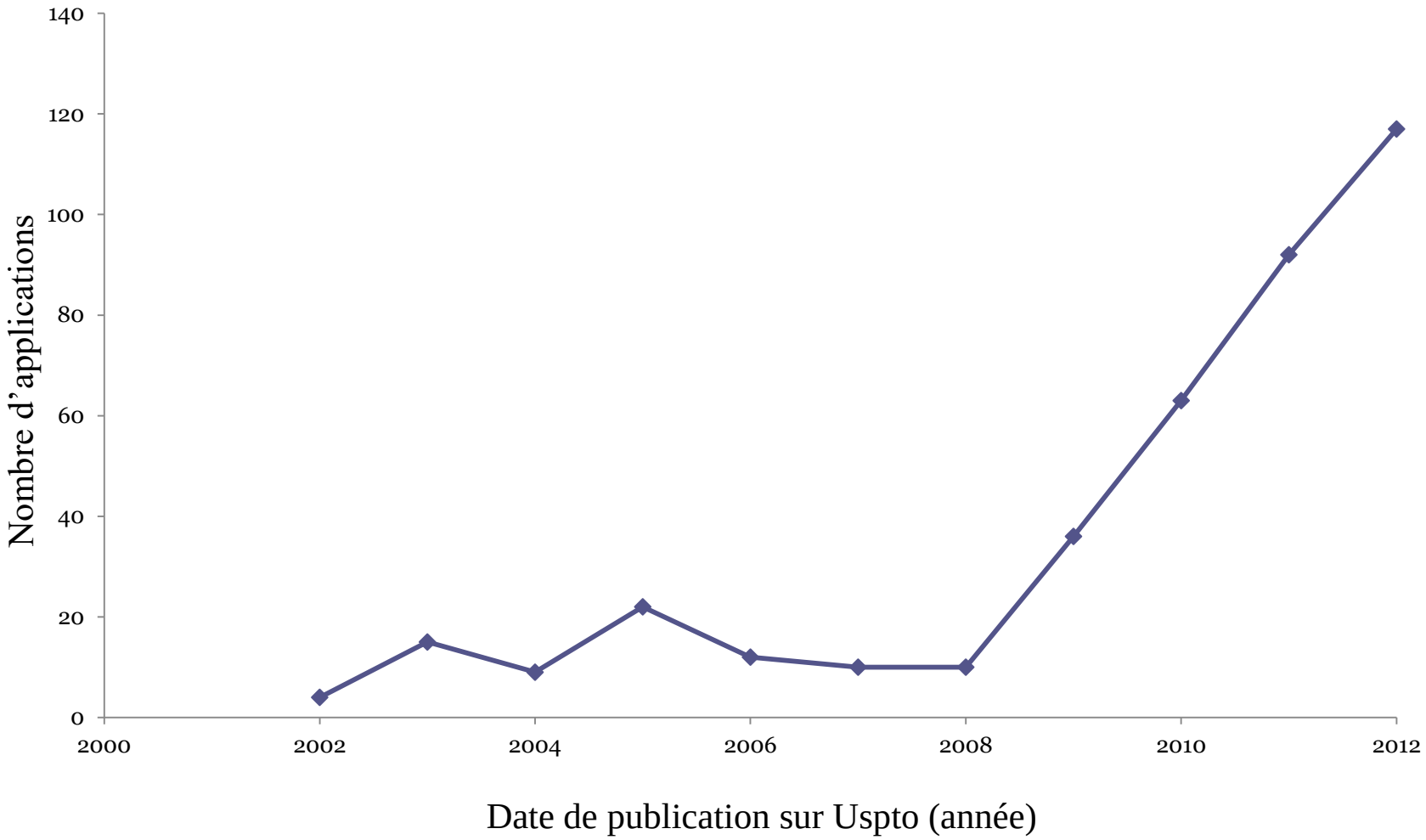
LES APPLICATIONS

- Définition
- Evolution
- Les auteurs
- Les équipes
- Les entreprises
- Les alliances

Définition

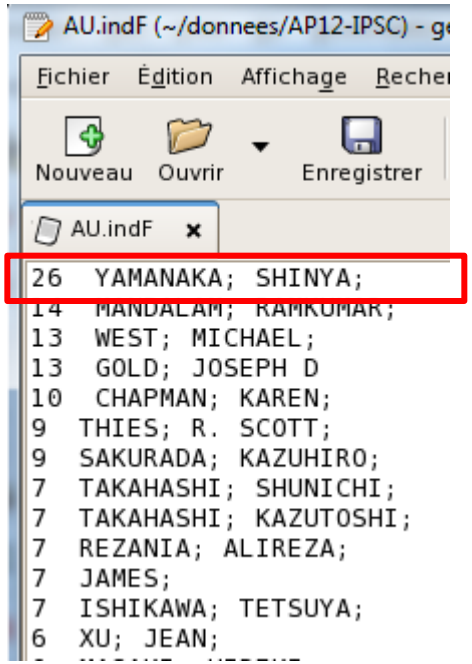
- Brevets en cour d’examination
- Mis à la disposition de tous
- Opposables

Evolution dans le temps

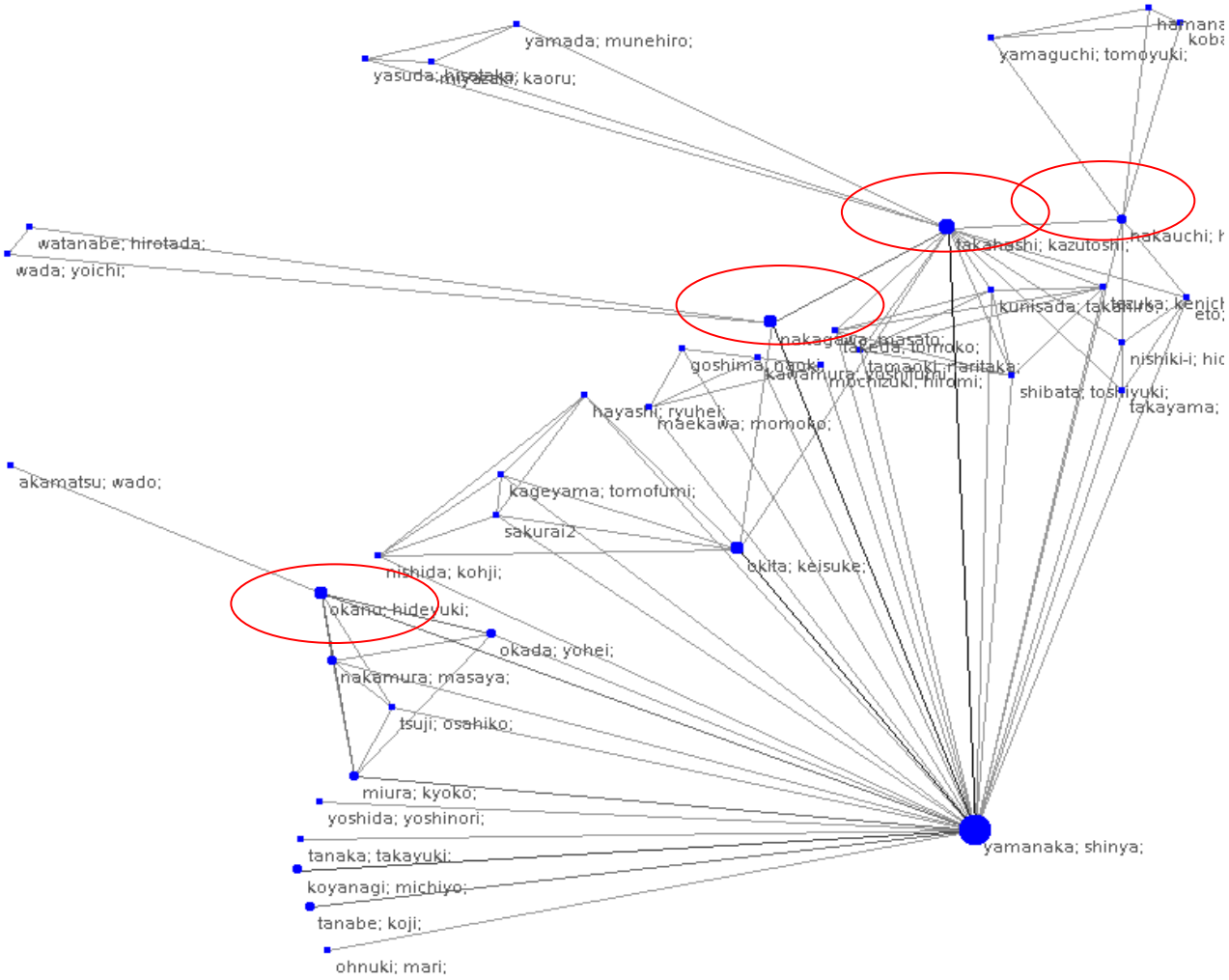


Les auteurs

Fréquence absolue



Une équipe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yamanaka; shinya;

Les entreprises

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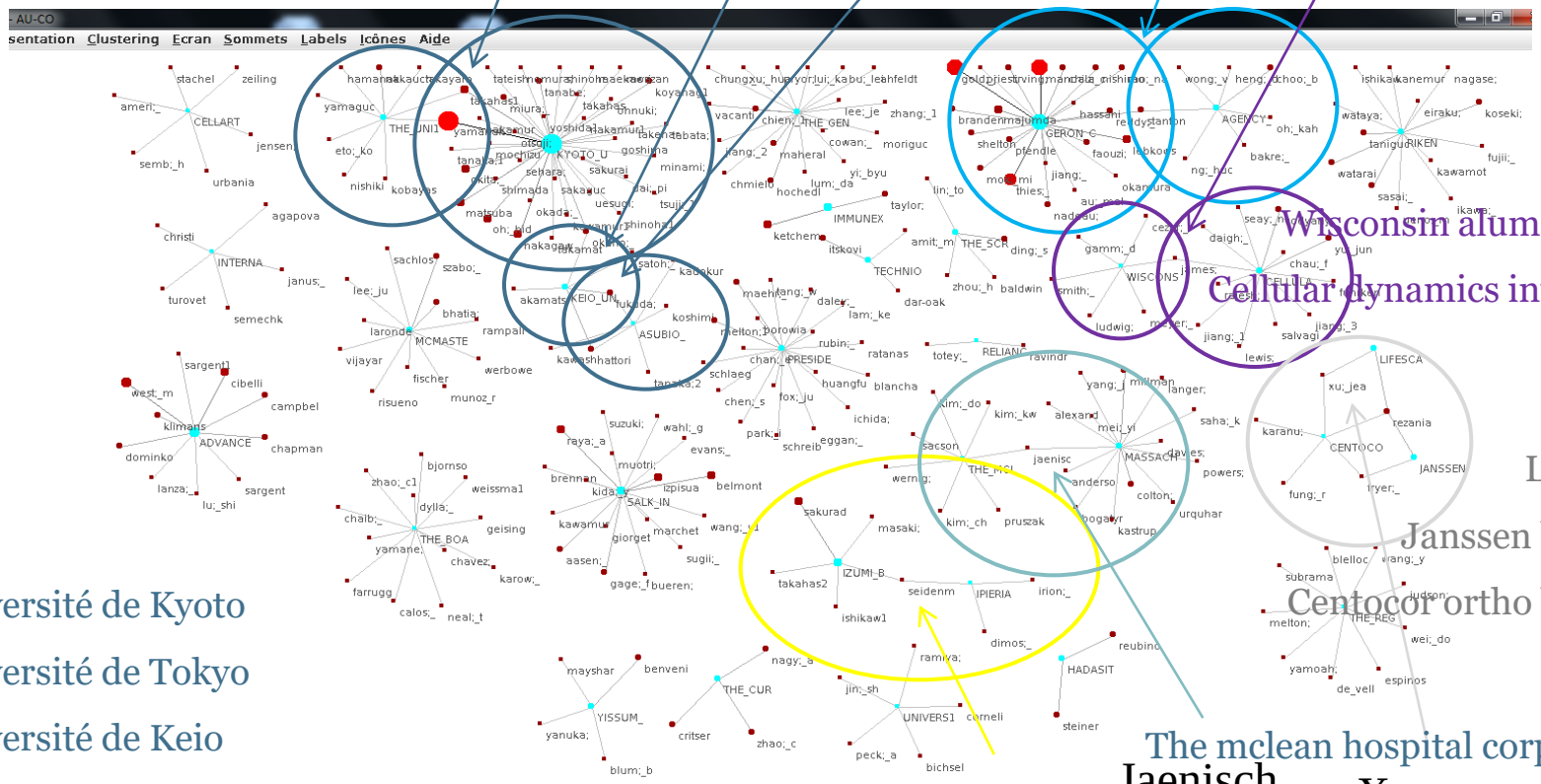

Les entreprises

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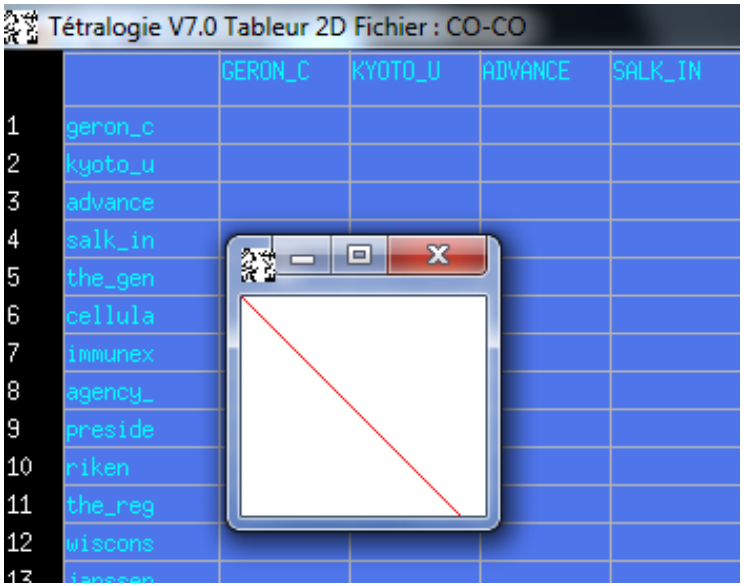
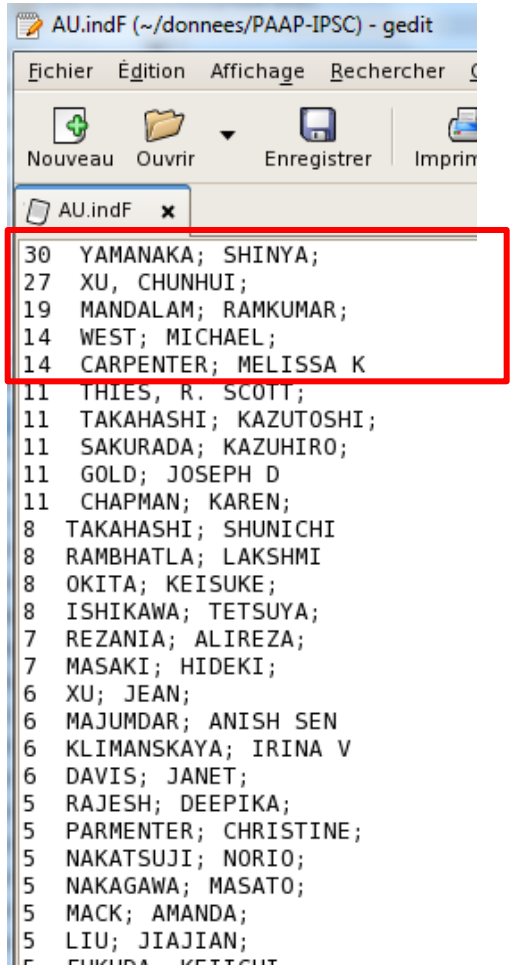


Multi base : PAAP

- Les auteurs
- Les équipes
- Répartition géographique

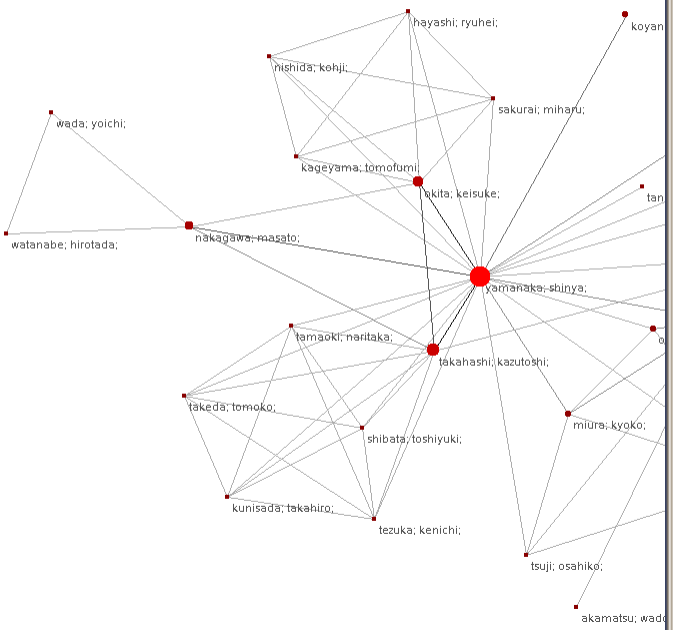
Les auteurs

Fréquence absolue



Equipes

Croisement 2D



PAAP

Classes_Connexes

```
yamanaka; shinya;
takahashi; kazutoshi;
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hamanaka; sanae;
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App

Detail_Lignes

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yamanaka; shinya;
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mochizuki; hiromi;
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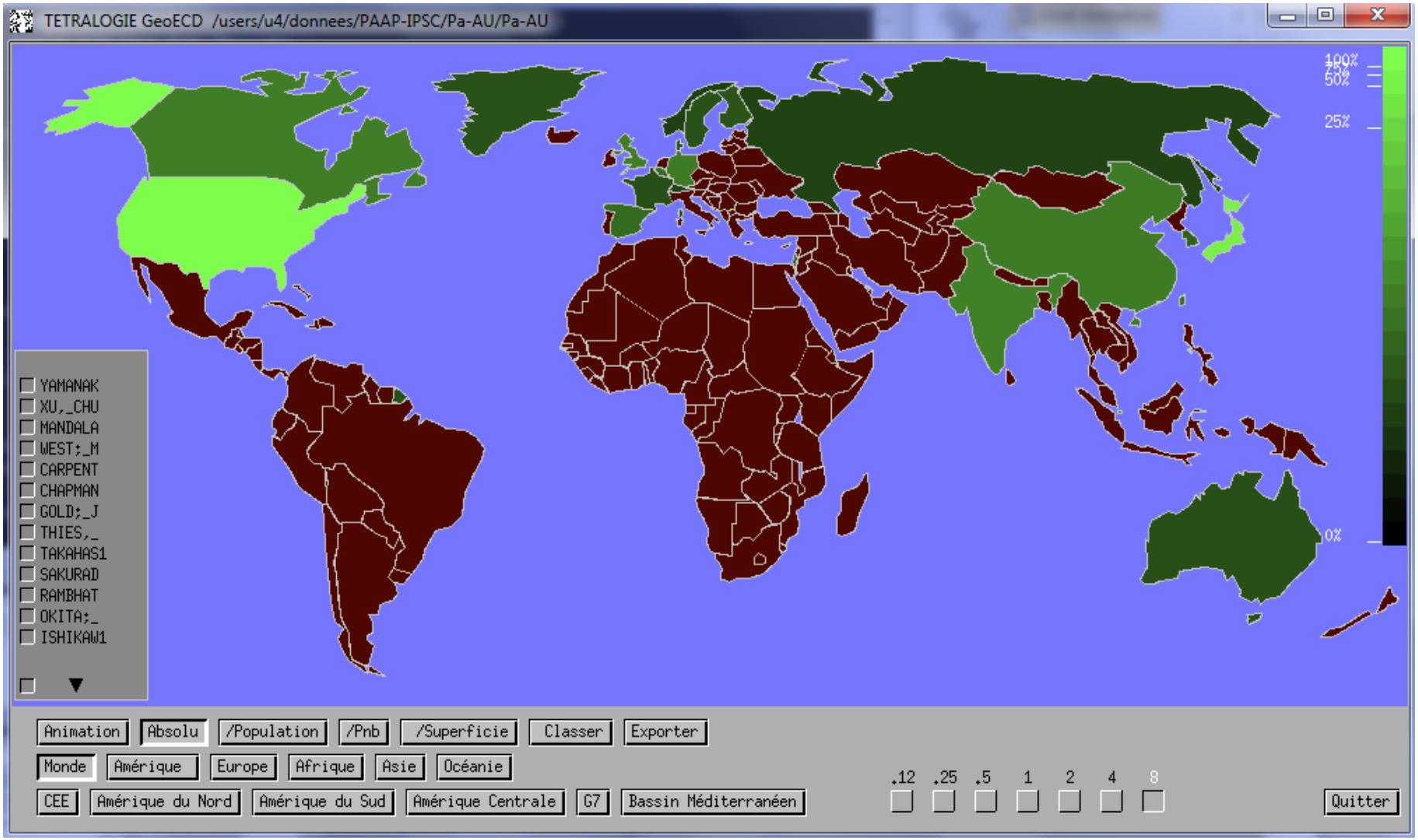
Lig 41, Col 1

Répartition géographique des inventeurs



Multi base : PAAPPM

- Les auteurs

Les auteurs

Résultats

303	XU; HUANSHENG;	XU H	3	#VALEUR!
304	XU; JEAN;	XU J	3	#VALEUR!
305	XU; XIAOFANG	XU X	3	#VALEUR!
306	XU; XIAOFANG;	XU X	3	#VALEUR!
307	YAMADA; MUNEHIRO;	YAMADA M	7	#VALEUR!
308	YAMADA; SATSUKI;	YAMADA S	7	#VALEUR!
309	YAMAGUCHI; TOMOYUKI;	YAMAGUCHI T	10	#VALEUR!
310	YAMANAKA; SHINYA	YAMANAKA S	9	#VALEUR!
311	YAMANAKA; SHINYA;	YAMANAKA S	9	#VALEUR!
312	YAMANE; TOSHIYUKI	YAMANE K	7	#VALEUR!
313	YAMANE; TOSHIYUKI;	YAMANE K	7	#VALEUR!
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316	YANG; YI-PING	YANG Y	5	#VALEUR!
317	YANG; YI-PING;	YANG Y	5	#VALEUR!

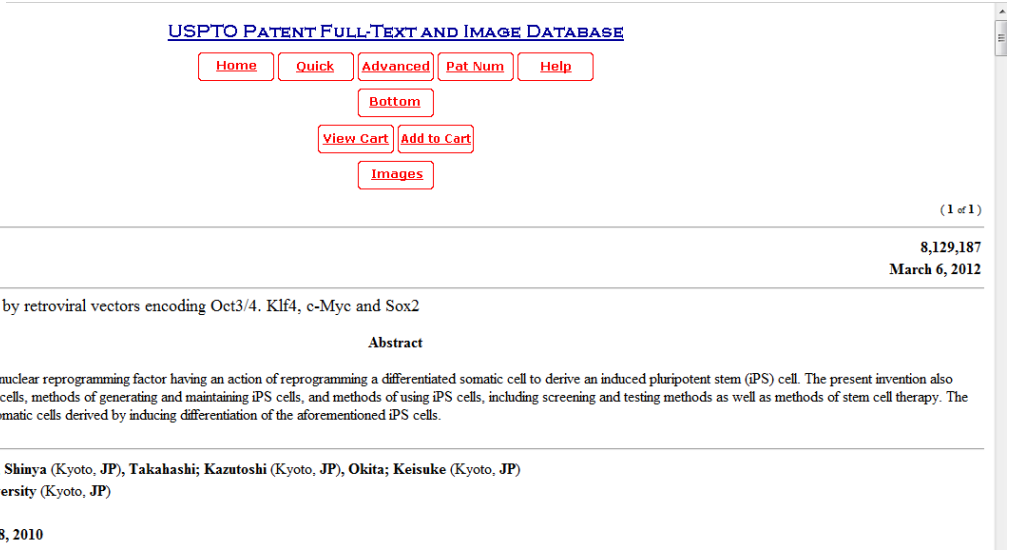
303 chercheurs-inventeurs

Le cas de Yamanaka :

4 brevets
26 applications
59 publications

19 de ses publications sont citées dans un brevet de 2012 alors qu'il en avait entre 55 et 59 à son actif à cette période sur le sujet des IPS.

=> Questions



USPTO PATENT FULL-TEXT AND IMAGE DATABASE

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Images

(1 of 1)

United States Patent **8,129,187**
Yamanaka , et al. **March 6, 2012**

Somatic cell reprogramming by retroviral vectors encoding Oct3/4. Klf4, c-Myc and Sox2

Abstract

The present invention relates to a nuclear reprogramming factor having an action of reprogramming a differentiated somatic cell to derive an induced pluripotent stem (iPS) cell. The present invention also relates to the aforementioned iPS cells, methods of generating and maintaining iPS cells, and methods of using iPS cells, including screening and testing methods as well as methods of stem cell therapy. The present invention also relates to somatic cells derived by inducing differentiation of the aforementioned iPS cells.

Inventors: **Yamanaka; Shinya** (Kyoto, **JP**), **Takahashi; Kazutoshi** (Kyoto, **JP**), **Okita; Keisuke** (Kyoto, **JP**)
Assignee: **Kyoto University** (Kyoto, **JP**)
Appl. No.: **12/656,907**
Filed: **February 18, 2010**

Conclusion

- Yamanaka = Pionnier dans les IPSC
- Etats-Unis et Japon déposent le plus de brevets et de publications

  ➡ Californie

- Sujet en plein essor et prometteur

- Ce que nous a apporté le projet ?

Merci de votre attention

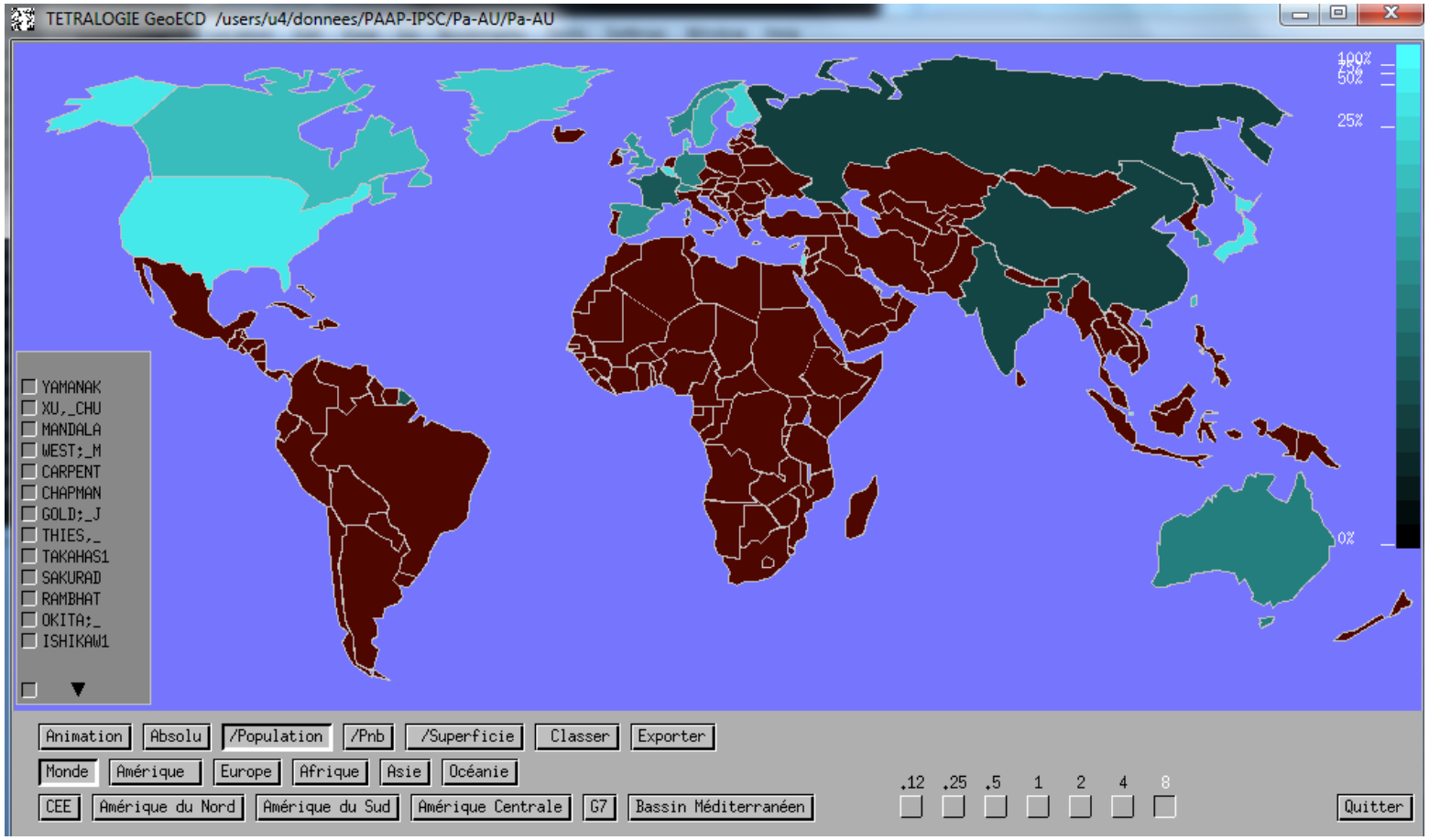
Diapo de secours

Publication de yamanaka :


Tétralogie V7.0 Tableur 2D Fichier : AU-DP

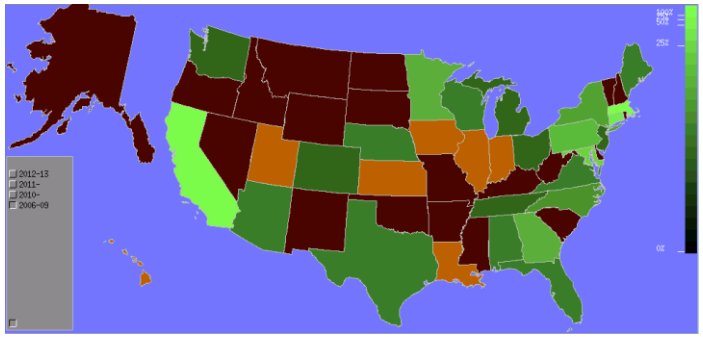
		2006-09	2010-	2011-	2012-13	CLASSE	POIDS
1	yamanak	30	15	10	4		1

Nationalité des inventeurs

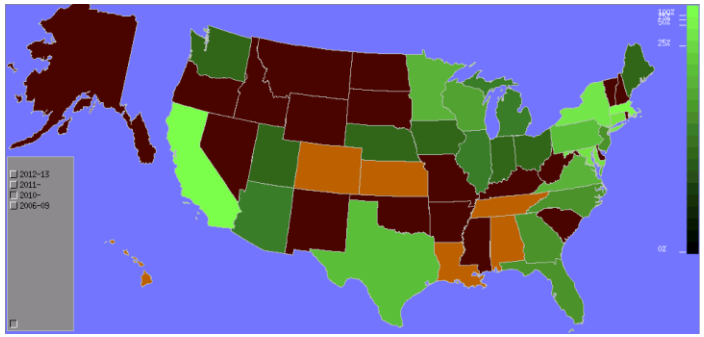


US-DP (PM)

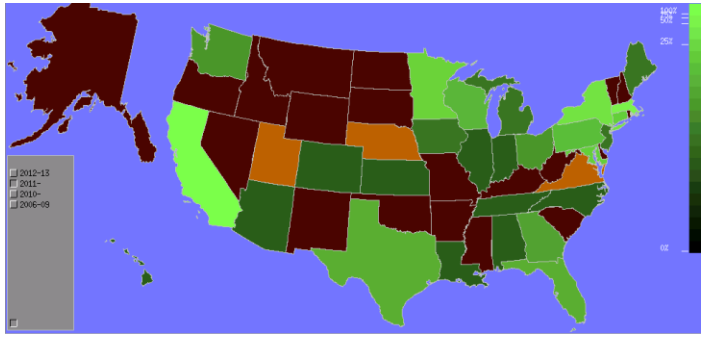
2006-2009



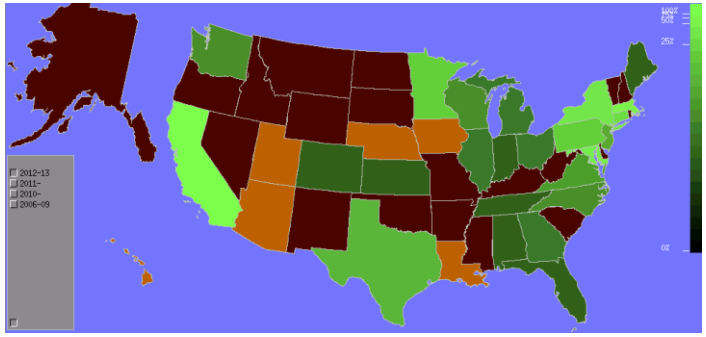
2010

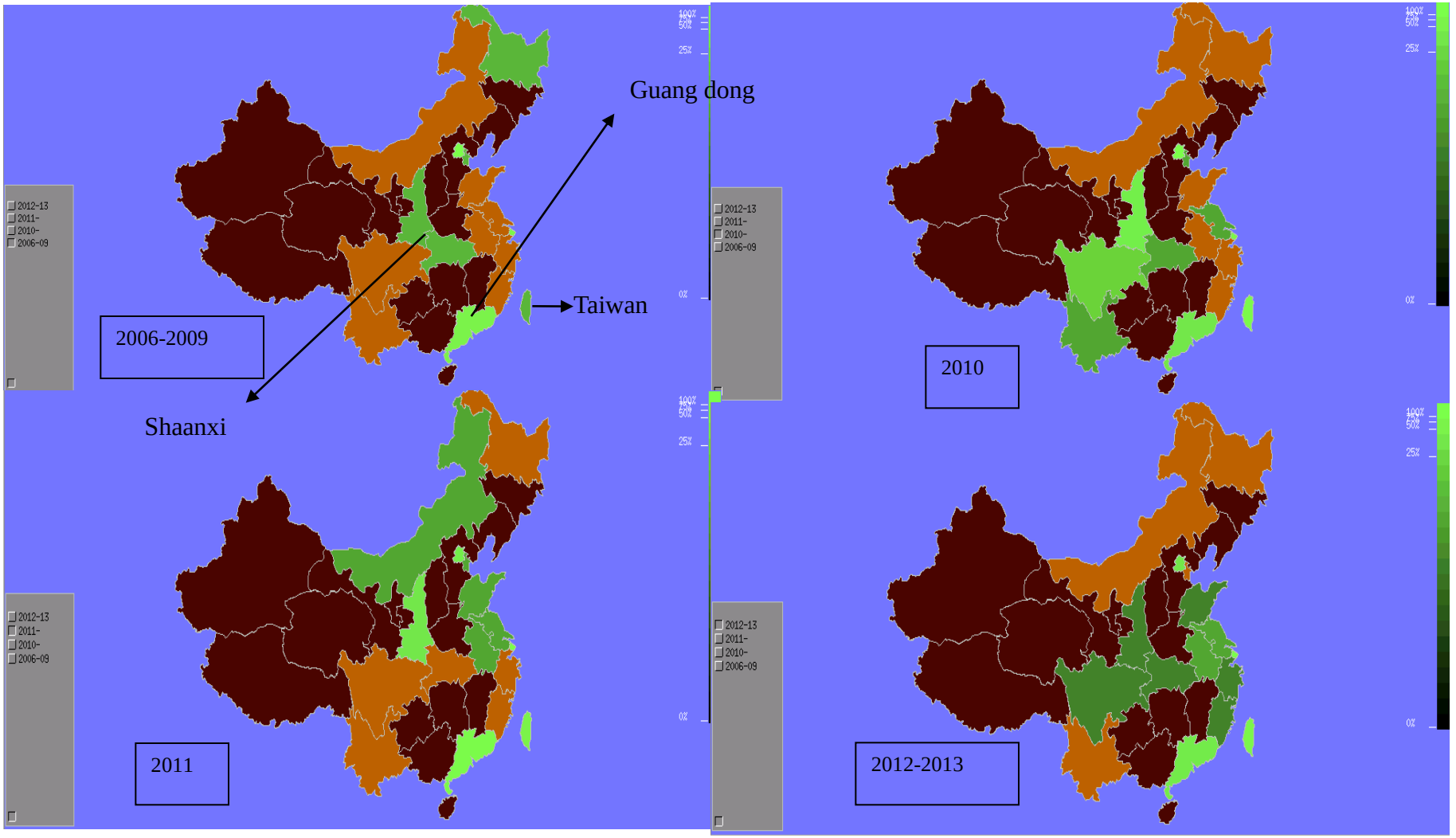


2011

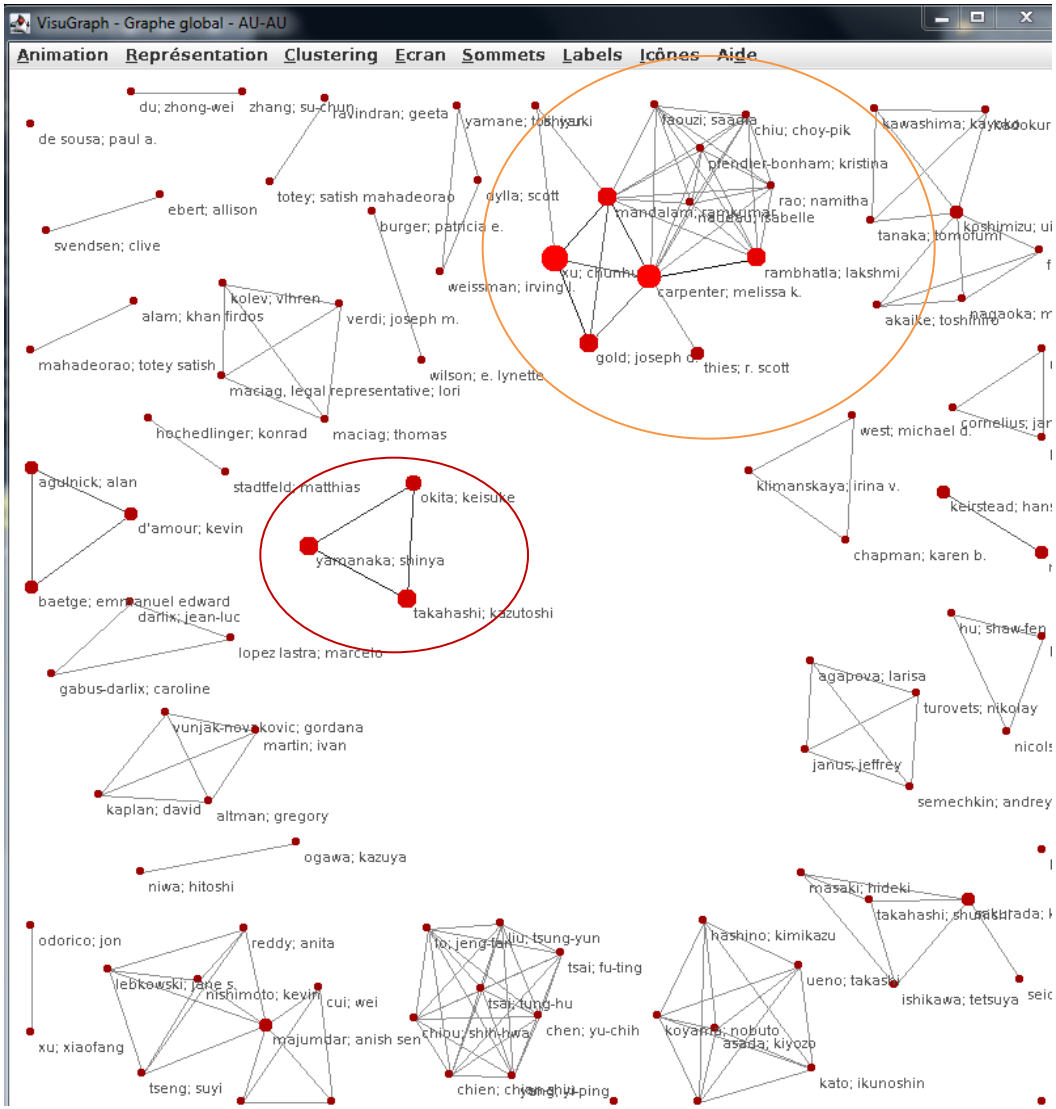


2012-2013





CN-DP


VisuGraph - Graphe global - AU-AU
Animation Représentation Clustering Ecran Sommets Labels Icônes Aide
du; zhong-wei
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mahadeorao; totey satish
wilson; e. lynette
maciag; legal representative; lori
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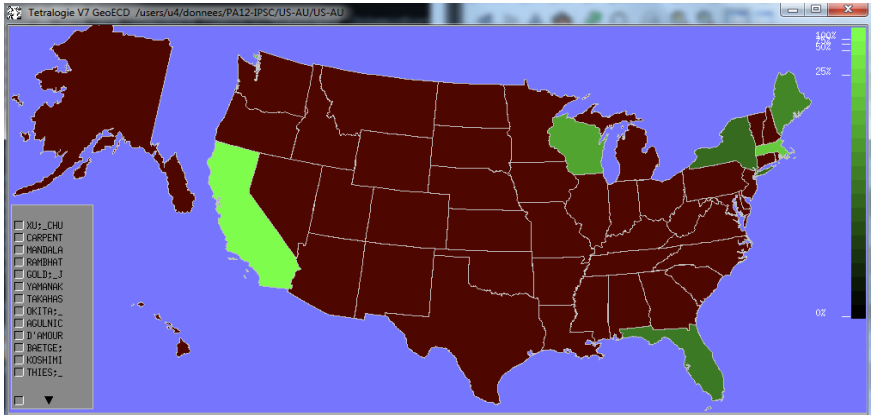
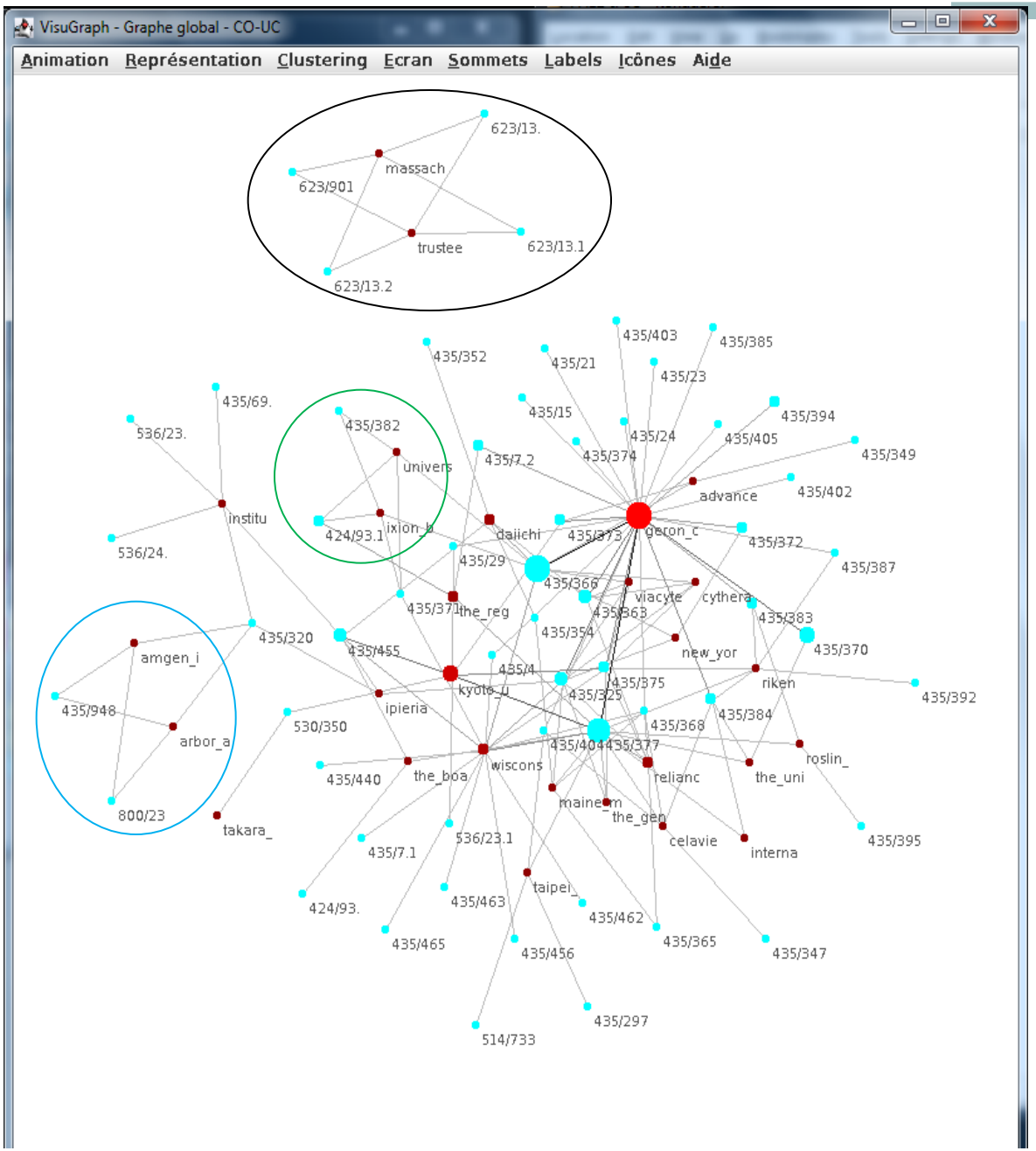
kato; ikunoshin

Us-AU: les inventeurs aux USA



AU-CO-DD (PA)

	1988-2003	2004-2005	2006-2008	2009-2010
GERON CORPORATION	Xu Mandalam Carpenter Rambhatla Gold	Xu Mandalam Carpenter Rambhatla Gold	Xu Zhao Thies Hay Cui	Xu Mandalam Carpenter Tseng Nishimoto Reddy Majumdar Lebkowski
THE UNIVERSITY COURT OF THE UNIVERSITY OF EDINBURGH			Zhao Hay Cui Majumdar	
KYOTO UNIVERSITY			Yamanaka Sakurada Okita Takahashi K. Masaki Ishikaw Takahashi S.	Yamanaka Sakurada Okita Takahashi K. Seidenman



CO-UC:

Massachusetts institute of technology & Trustees of Tufts College: quatre sous-classes de la classe 623.

Amgen inc & Arbor acres farm inc.: deux classes 800/24 et 435/948.

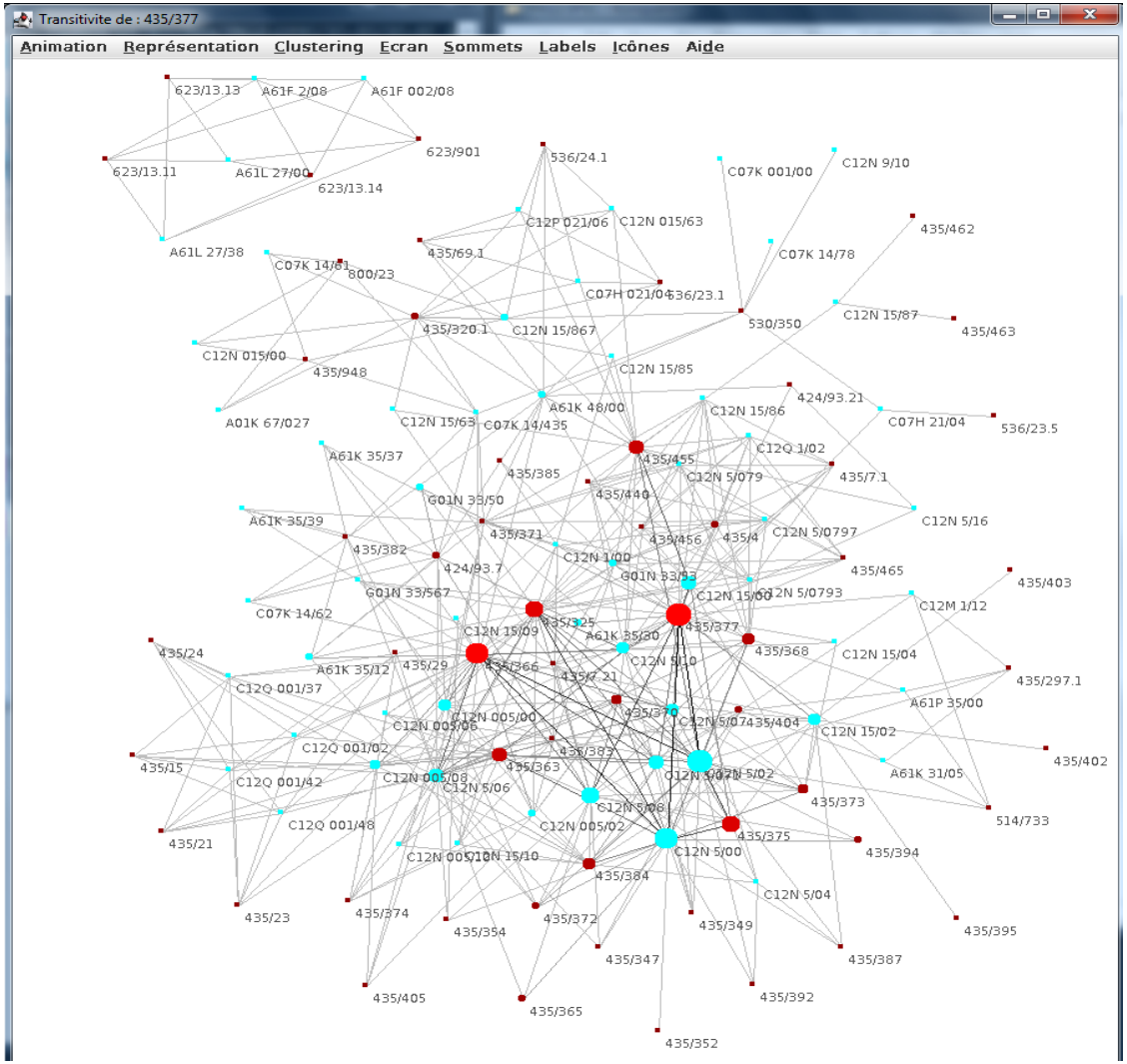
Ixion biotechnology inc & university of florida: sous-classes des classes 424 et 435.

IC Classes

- C12N = « micro-organisms or enzymes »
- C12M = « apparatus for enzymology or microbiology »
- C12Q = « measuring or testing processes involving enzymes or micro-organisms »
- C07K = « peptides »
- A61K = « preparations for medical, dental, or toilet purposes »
- A61L = « methods or apparatus for sterilising materials or objects in general »
- A61P = « therapeutic activity of chemical compounds or medicinal preparations ».
- G01N = « investigating or analysing materials by determining their chemical or physical properties"

UC Classes

- 435 = « Chemistry : molecular biology and microbiology »
- 536 = « Organic compounds »
- 530 = « Chemistry: natural resins or derivatives; peptides or proteins; lignins or reaction products thereof »: Compositions : Acyclic carbon to carbon unsaturation »
- 424/93.7 = « Drug, bio-affecting and body treating compositions < whole live micro-organism, cell, or virus containing < Animal or plant cell "
- 623 = « Prosthesis (i.e., artificial body members), parts thereof, or aids and accessories therefor »
- 800 = « Multicellular living organisms and unmodified parts thereof and related processes »


Transitivite de : 435/377
Animation Représentation Clustering Ecran Sommets Labels Icônes Aide
623/13.13
A61F 2/08
A61F 002/08
623/901
623/13.11
A61L 27/00
623/13.14
A61L 27/38
536/24.1
C07K 001/00
C12N 9/10
C12P 021/06
C12N 015/63
435/462
435/69.1
C07K 14/78
C07K 14/81
800/23
C07H 021/04
536/23.1
435/320.1
C12N 15/867
530/350
C12N 15/87
435/463
C12N 015/00
435/948
C12N 15/85
424/93.21
A61K 48/00
C12N 15/86
C07H 21/04
536/23.5
A01K 67/027
C12N 15/63
C07K 14/435
C12Q 1/02
A61K 35/37
435/455
435/385
C12N 5/079
435/7.1
G01N 33/50
435/440
A61K 35/39
C12N 5/16
435/371
435/456
435/4
C12N 5/0797
435/382
C12N 1/00
424/93.7
435/465
G01N 33/53
435/403
G01N 33/567
C12N 15/00
C12N 5/0793
C07K 14/62
C12M 1/12
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A61K 31/05
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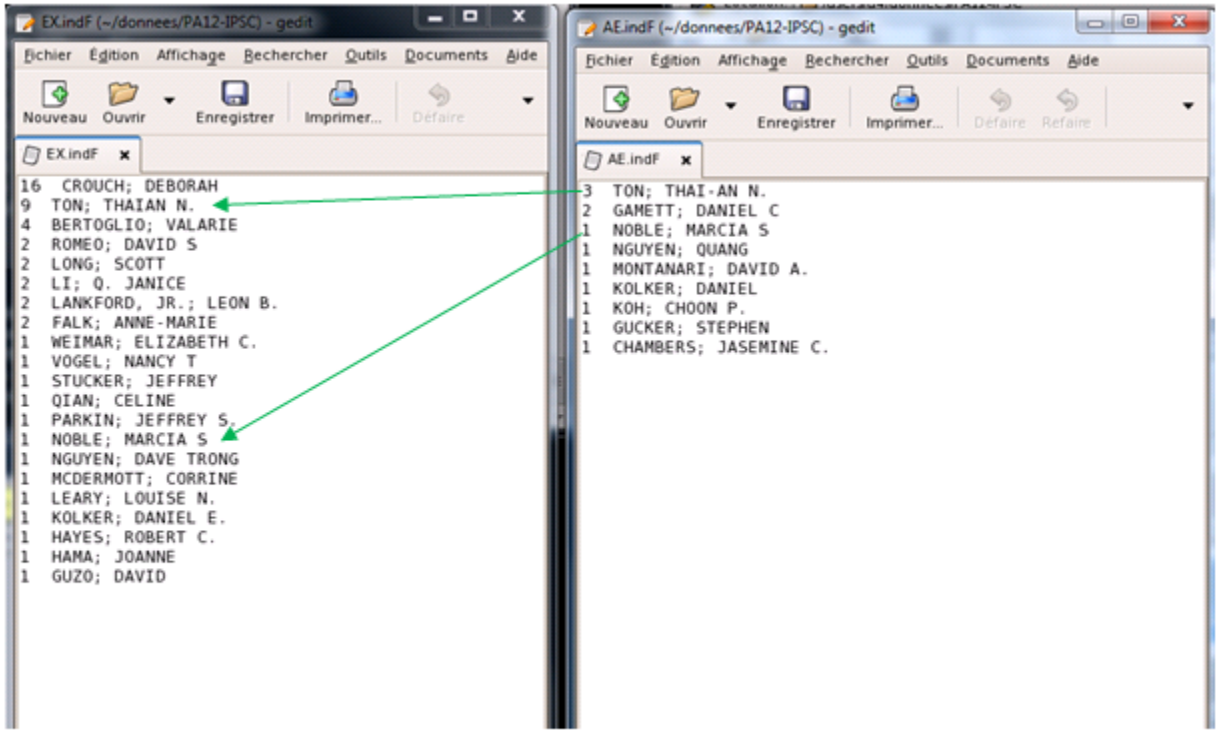
C12N 005/08
C12N 5/06
435/373
C12N 5/08
514/733
C12Q 001/48
C12N 005/02
435/21
435/375
C12N 005/10
C12N 15/10
C12N 5/00
435/394
435/384
C12N 5/04
435/23
435/374
435/372
435/349
435/395
435/354
435/347
435/387
435/405
435/392
435/365
435/352

Examinateurs – Agents Ex



Deux assistants examinateurs, TON et NOBLE, ont été promus en tant qu'examinateurs.

CV: YAMANAKA

The Nobel Prize in Physiology or Medicine 2012
Sir John B. Gurdon, Shinya Yamanaka

The Nobel Prize in Physiology or Medicine 2012
Nobel Prize Award Ceremony
Sir John B. Gurdon
Shinya Yamanaka

Biographical
Nobel Lecture
Interview
Documentary
Nobel Diploma
Photo Gallery
Prize Presentation
Other Resources

Shinya Yamanaka

Born: 1962, Osaka, Japan

Affiliation at the time of the award: Kyoto University, Kyoto, Japan, Gladstone Institutes, San Francisco, CA, USA

Prize motivation: "for the discovery that mature cells can be reprogrammed to become pluripotent"

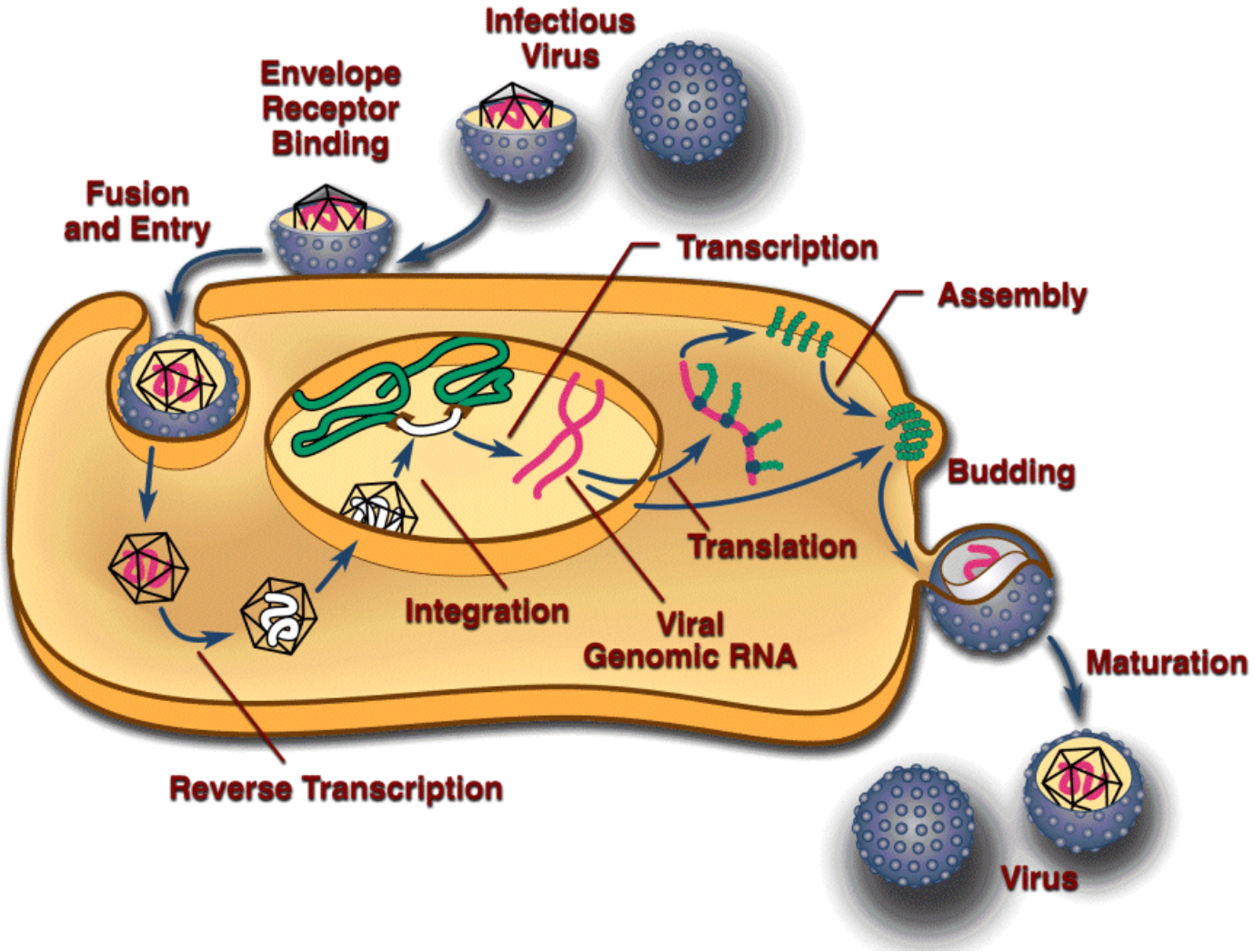
Photo: U. Montan

Curriculum Vitae

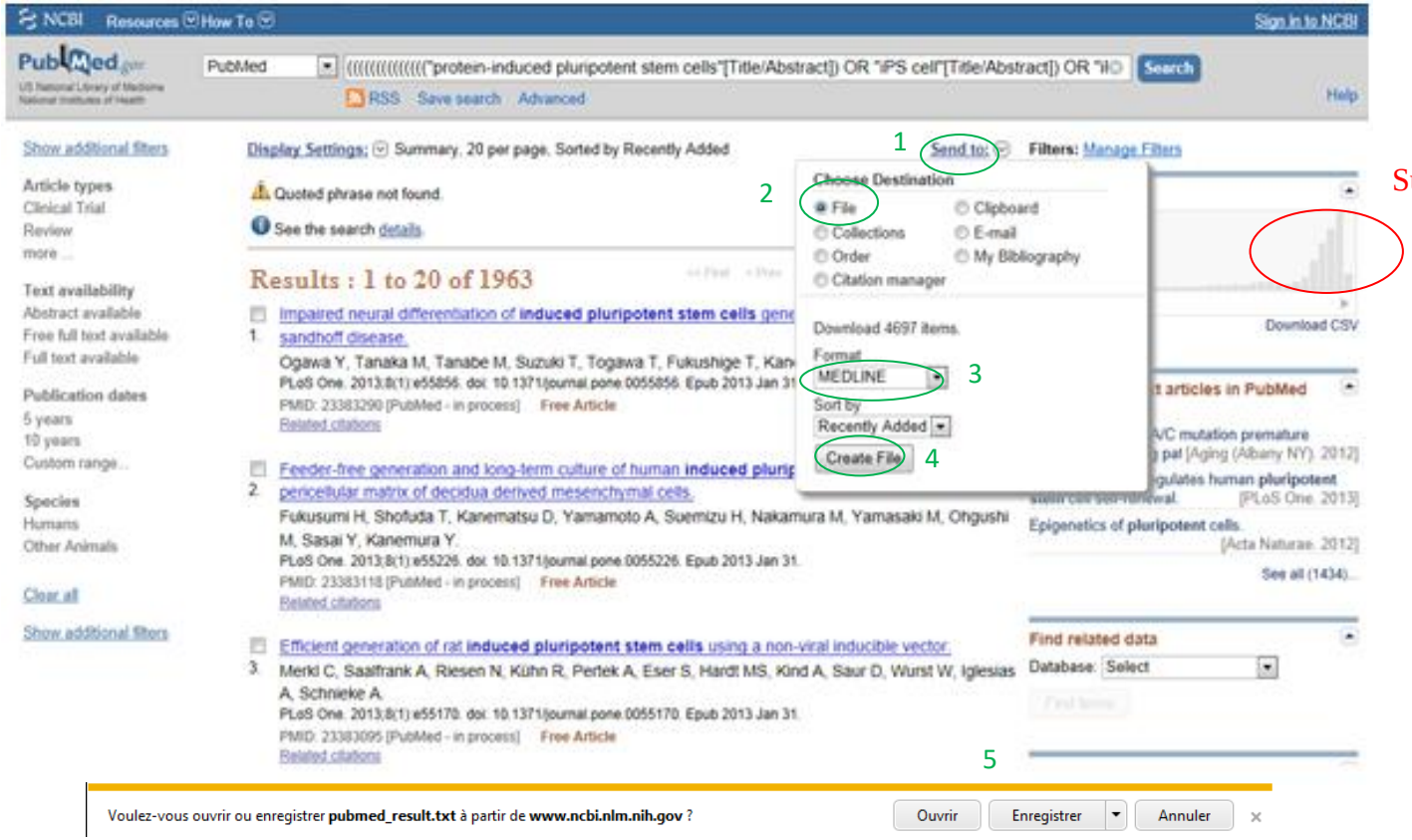
1981-1987	Kobe University, School of Medicine, Kobe, Japan
1987-1989	Resident, National Osaka Hospital, Osaka, Japan
1989-1993	Osaka City University Graduate School, Osaka, Japan Division of Medicine
1993-1995	Postdoctoral Fellow Gladstone Institute of Cardiovascular Disease, San Francisco, USA
1995-1996	Staff Research Investigator, Gladstone Institute of Cardiovascular Disease
1996-1999	Assistant Professor, Osaka City University, Medical School, Osaka, Japan
1999-2003	Associate Professor, Nara Institute of Science and Technology, Nara, Japan
2003-2005	Professor, Nara Institute of Science and Technology
2004-2010	Professor Institute for Frontier Medical Sciences, Kyoto University, Kyoto, Japan
2007-2012	Professor, Institute for Integrated Cell-Material Sciences (iCeMS), Kyoto University Kyoto, Japan
2008-2010	Director, Center for iPS cell Research and Application (CiRA), iCeMS Kyoto University, Kyoto, Japan
2010-	Director, Center for iPS cell Research and Application (CiRA), Kyoto University, Kyoto, Japan
2012-2013	President, International Society for Stem Cell Research (ISSCR)
2012-	Professor, Center for iPS cell Research and Application (CiRA), Kyoto University Kyoto, Japan

http://www.cira.kyoto-u.ac.jp/e/research/yamanaka_master.html

Cycle du rétrovirus

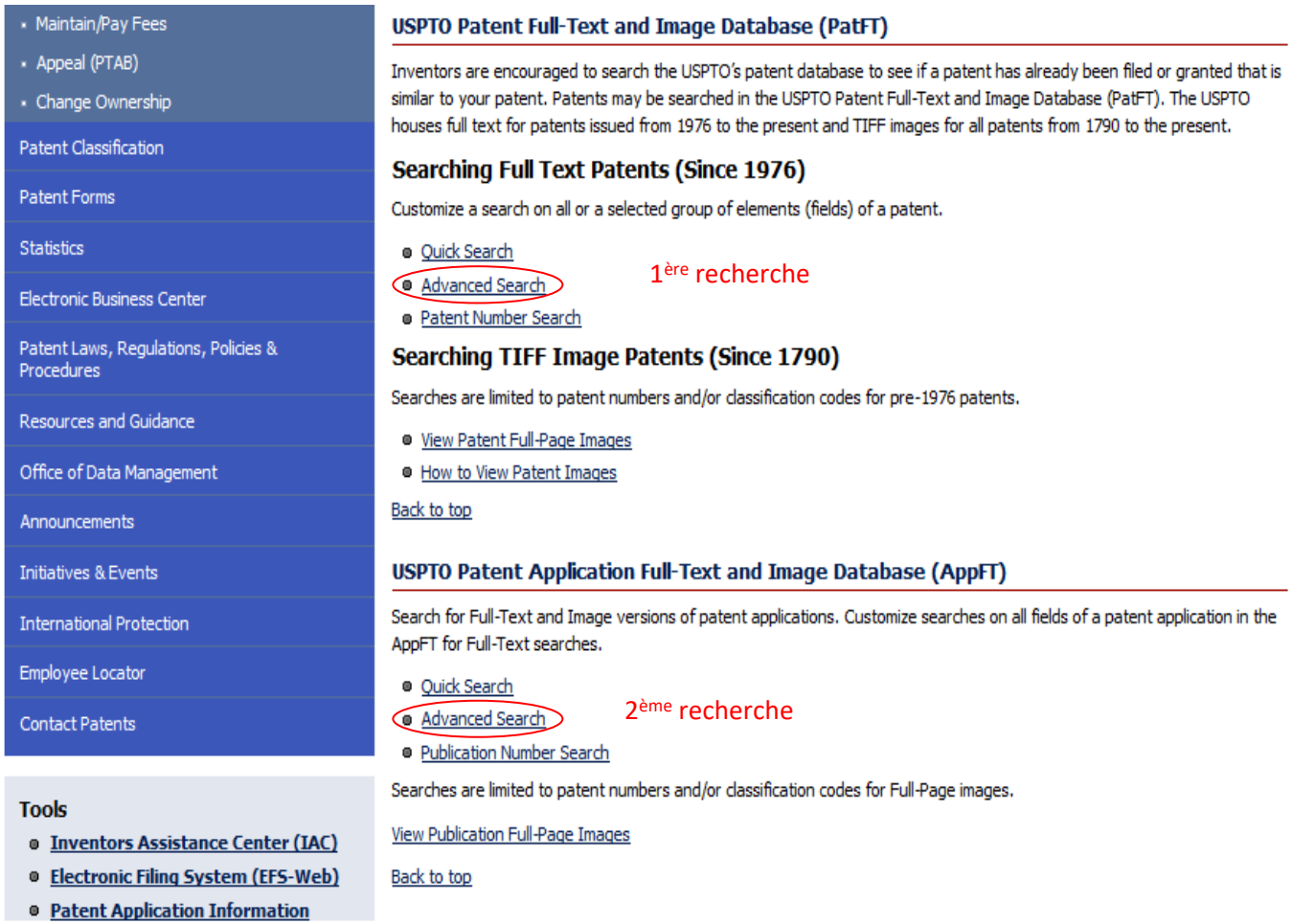


PubMed



Sujet récent

USPTO


Maintain/Pay Fees
Appeal (PTAB)
Change Ownership
Patent Classification
Patent Forms
Statistics
Electronic Business Center
Patent Laws, Regulations, Policies & Procedures
Resources and Guidance
Office of Data Management
Announcements
Initiatives & Events
International Protection
Employee Locator
Contact Patents
Tools
Inventors Assistance Center (IAC)
Electronic Filing System (EFS-Web)
Patent Application Information
USPTO Patent Full-Text and Image Database (PatFT)
Inventors are encouraged to search the USPTO's patent database to see if a patent has already been filed or granted that is similar to your patent. Patents may be searched in the USPTO Patent Full-Text and Image Database (PatFT). The USPTO houses full text for patents issued from 1976 to the present and TIFF images for all patents from 1790 to the present.
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Customize a search on all or a selected group of elements (fields) of a patent.
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2ème recherche
Searches are limited to patent numbers and/or classification codes for Full-Page images.
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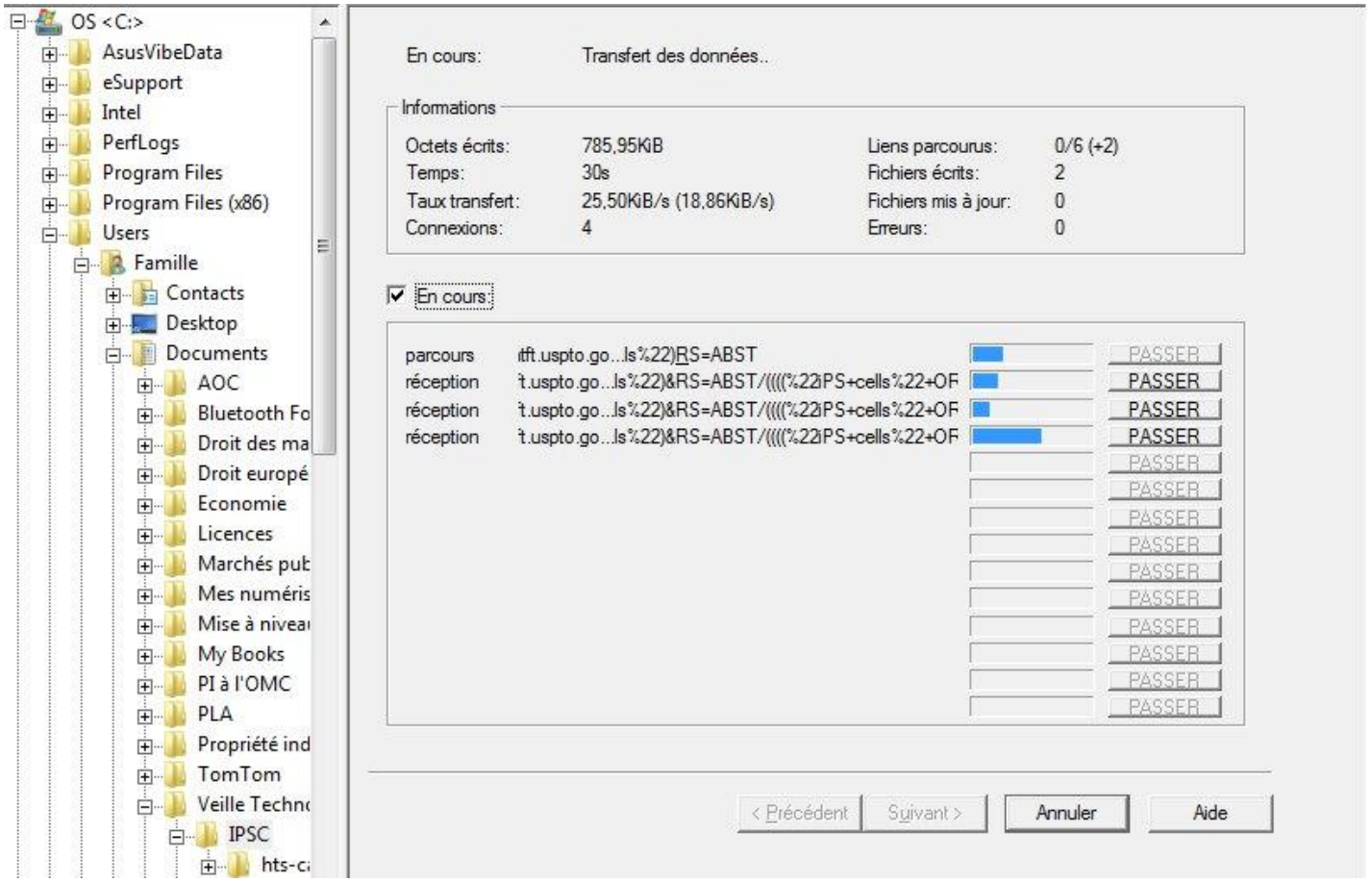
HTTRACK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Famille
Contacts
Desktop
Documents
AOC
Bluetooth Fo
Droit des ma
Droit europé
Economie
Licences
Marchés pub
Mes numéris
Mise à nivea
My Books
PI à l'OMC
PLA
Propriété ind
TomTom
Veille Techn
IPSC
hts-c
En cours:
Transfert des données..
Informations
Octets écrits:
785,95KiB
Temps:
30s
Taux transfert:
25,50KiB/s (18,86KiB/s)
Connexions:
4
Liens parcourus:
0/6 (+2)
Fichiers écrits:
2
Fichiers mis à jour:
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Erreurs:
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Suivant >
Annuler
Aide

Licence GPL

- La Licence publique générale est une licence qui définit le mode d'utilisation, donc d'usage et de diffusion, par de nombreux auteurs de logiciels libres

Unix

- Unix est un système d'exploitation multitâche

- Il permet à un ordinateur de faire exécuter simultanément plusieurs programmes par un ou plusieurs utilisateurs

Xming

- XMing est un logiciel libre qui va vous donner le droit de travailler sur l'interface graphique de la machine à laquelle vous vous connecterez

Putty

- PuTTY vous permet de vous connecter en SSH à une station via un simple terminal

- C’est un logiciel libre pour une connexion sécurisée à distance ou des transferts encryptés.

Facteurs de transcription

- Un facteur de transcription est une protéine qui régule l'expresssion des gènes soit en l'activant, soit en inhibant sa transcription

- Oct-3/4, Sox2, c-Myc et Klf4