

TAL EFFECTORS AND CRISPR-CAS PATENT LANDSCAPES

July 2014



IPStudies

Intangible assets deserve closer scrutiny

Our team



Corinne LE BUHAN, PhD

ICT Expert

IP Strategy & Management

- Funded IPStudies in 2010 to help Swiss & EU high-tech SMEs develop and execute their IP valuation plans
- 12+ years experience in IP strategy and management –former VP Knowledge Management of Nagravision-Kudelski Group, in charge with patents (200 families), standards, R&D collaborations, licensing and technical publications portfolios
- Teaches international licensing practices and IP strategy at IEEPI Paris & Bern – Advices EU Horizon2020 on Innovation in SMEs
- Patent licensing sales and marketing partner, ICT sector, for Florenus in Berlin - ICT Technology Expert for various licensing facilitators and aggregators in France and the US
- University postgrade in management of innovation and intellectual property (University of Strasbourg, 2008), PhD in Communications Science (EPFL, 1998), MSc in Electrical Engineering (INSA Rennes, 1994)
- Experienced with Patbase, EPO/RegisterPlus, USPTO/PAIR
- International network of IP practitioners and licensing managers - Member LES, IEEE, AROPI, AAIEEPI



Fabien PALAZZOLI, PhD

Life Sciences Expert

Patent Analysis & Landscapes

- Joined IPStudies in 2013 to develop the IP analytics offering in life sciences & biotechnology
- 7+ years experience in technology transfers, patent mapping/landscaping and FTO-driven research intelligence for the French public sector and biotech SMEs - former IP analytics sales manager for FIST SA, the CNRS technology transfer office
- Author/co-author of 18 scientific and technical publications/communications, as well as one book chapter
- Life sciences patent analyst for various biotech/medtech SMEs in Switzerland
- PhD in Life Sciences (Exploitation of patent information in a public research laboratory: identification of technological niches in bioproduction and gene therapy, University of Tours, 2011), MSc in Biotechnology and Law (University of Tours, 2007)
- Experienced with Orbit, Patbase, Intellixir, patent offices databases
- International network of patent information analysts

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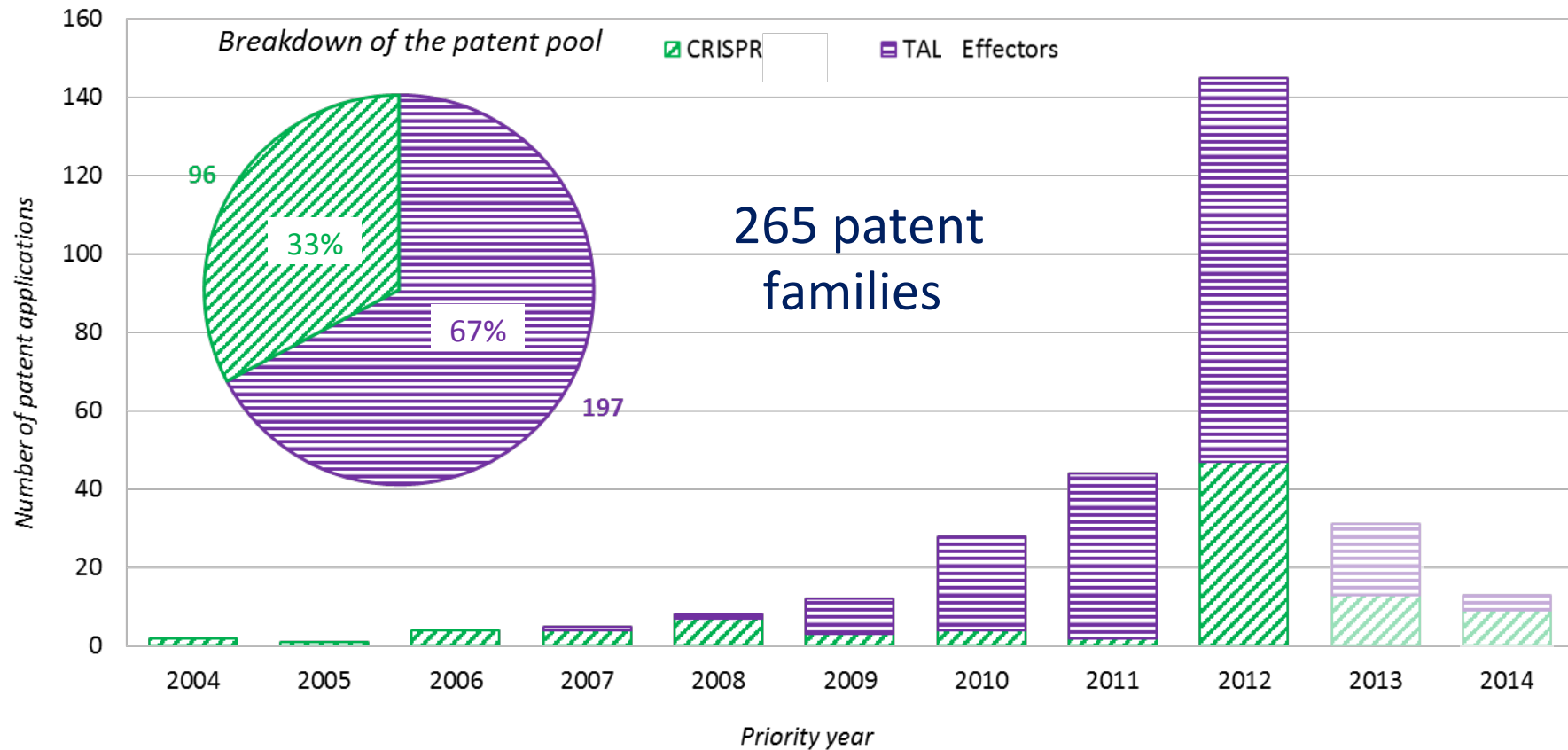
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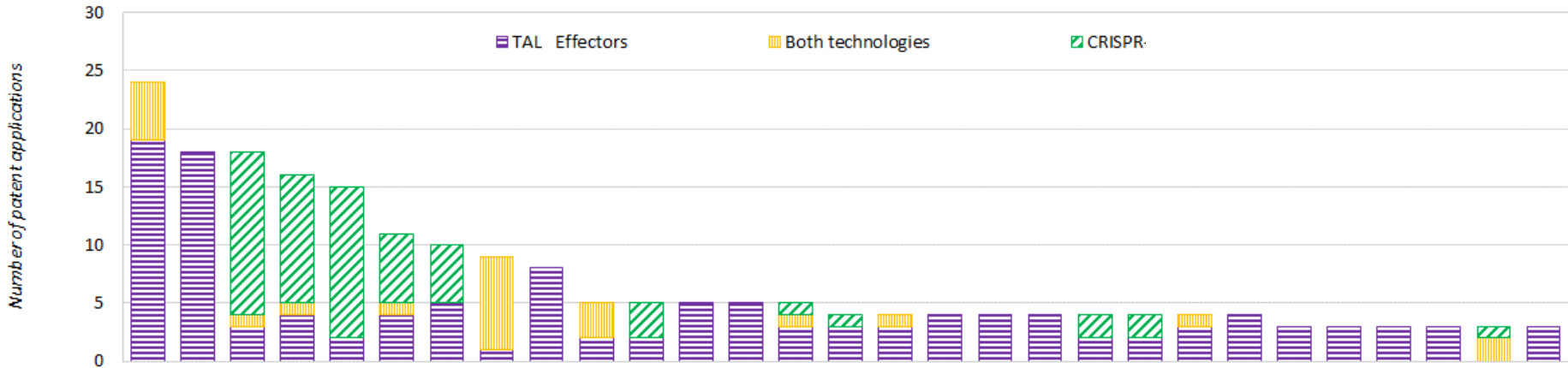
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 - Breakdown by Chimeric proteins
 - Breakdown of the patent portfolio
 - Temporal distribution of filings
 - Positioning of the applicants
- Main forward cited patent families

Temporal distribution of patent filings by targeting system (2004-2014)



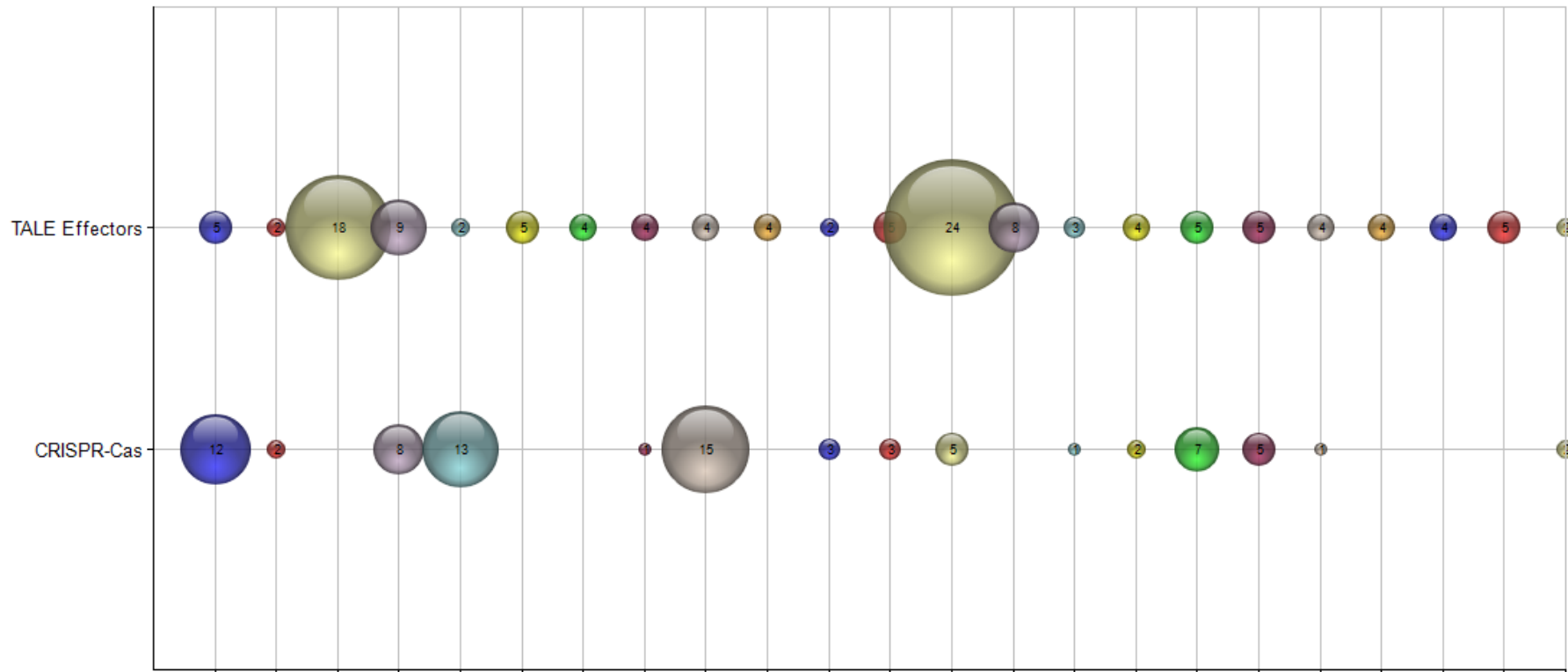
Main patent applicants by targeting system (≥ 3 patent families)



Applicants with at least 3 patent families in their patent portfolio

Breakdown by Targeting system

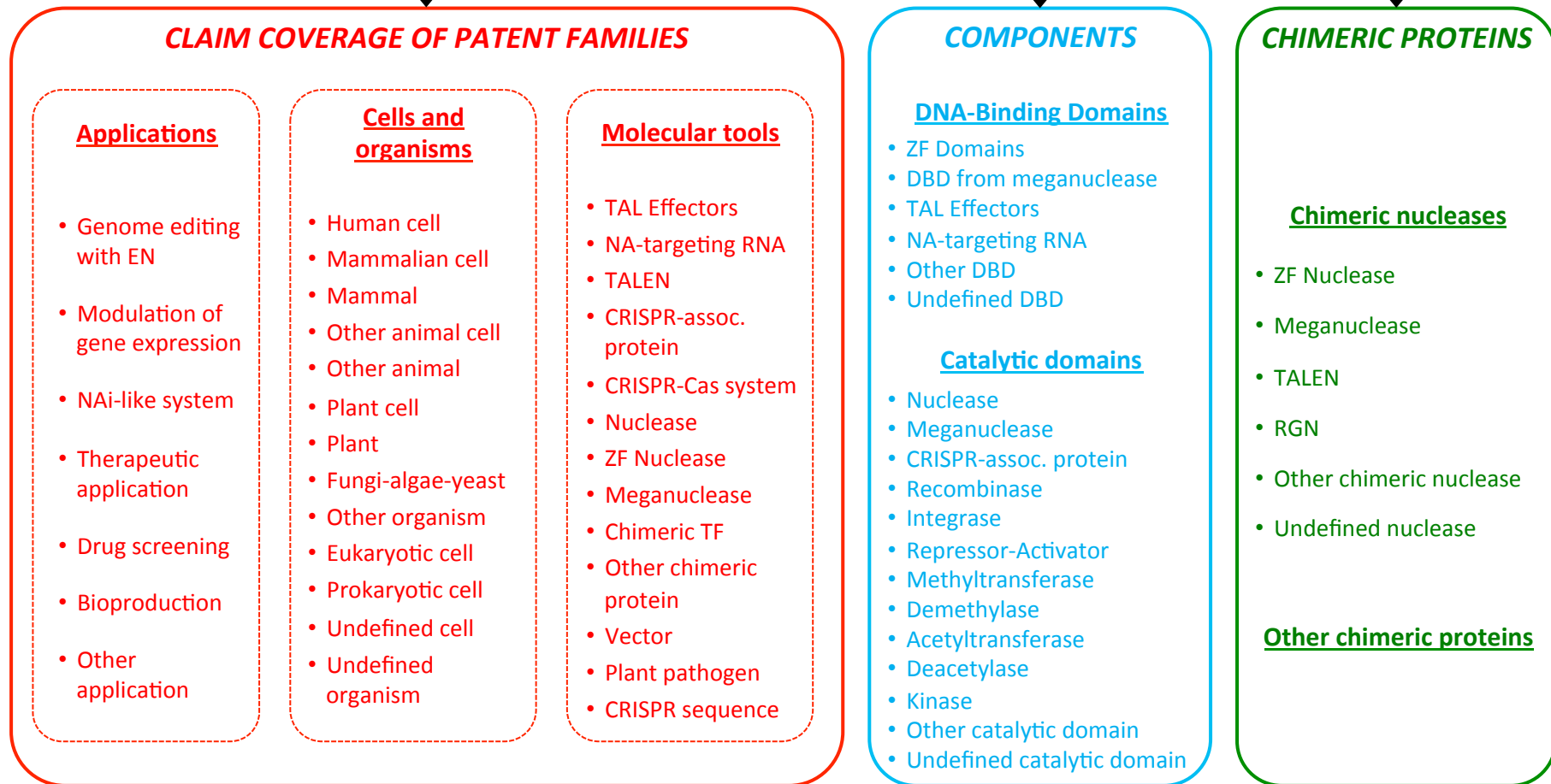
Positioning of the main applicants (≥ 4 patent families)



Applicants with at least 4 patent families in their patent portfolio claiming or mentioning TAL Effectors or a CRISPR-Cas system

Breakdown of the global patent database

The 265 patent families have been manually classified

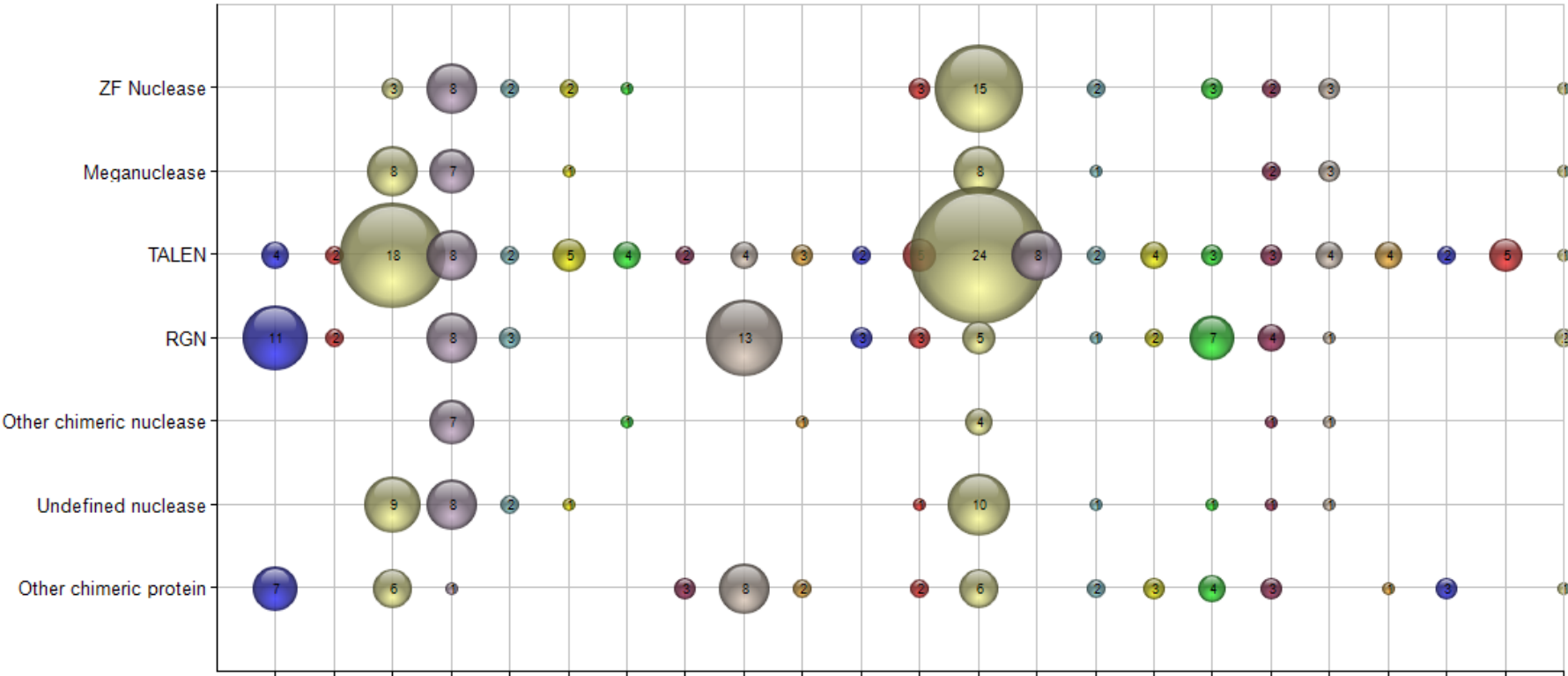


- A patent family can be classified in several categories (e.g. "Genome Editing with EN" and "Therapeutic application" and "Human cell" and "TALEN" ...).



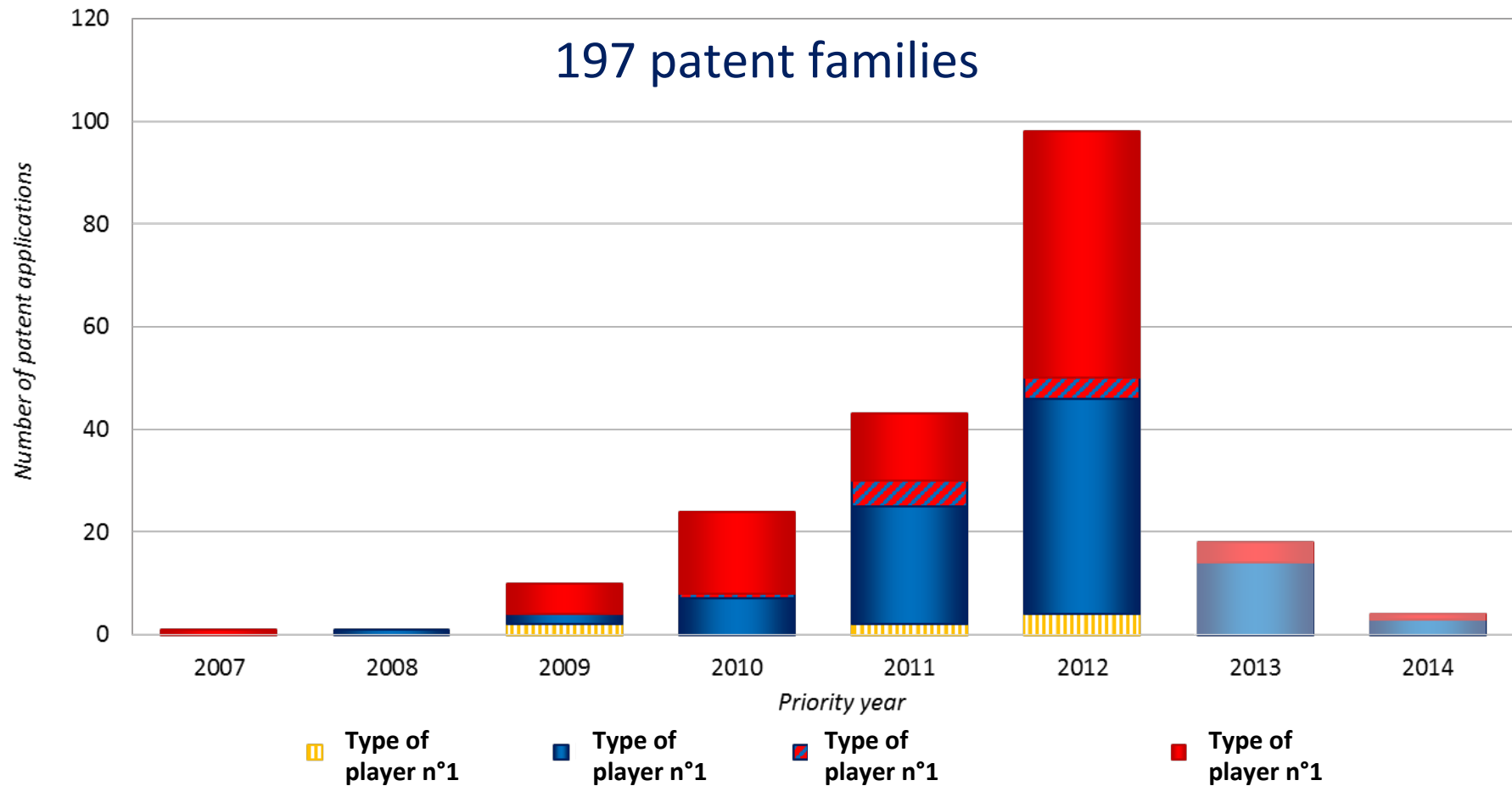
Breakdown by Chimeric proteins

Positioning of the main applicants (≥ 4 patent families)

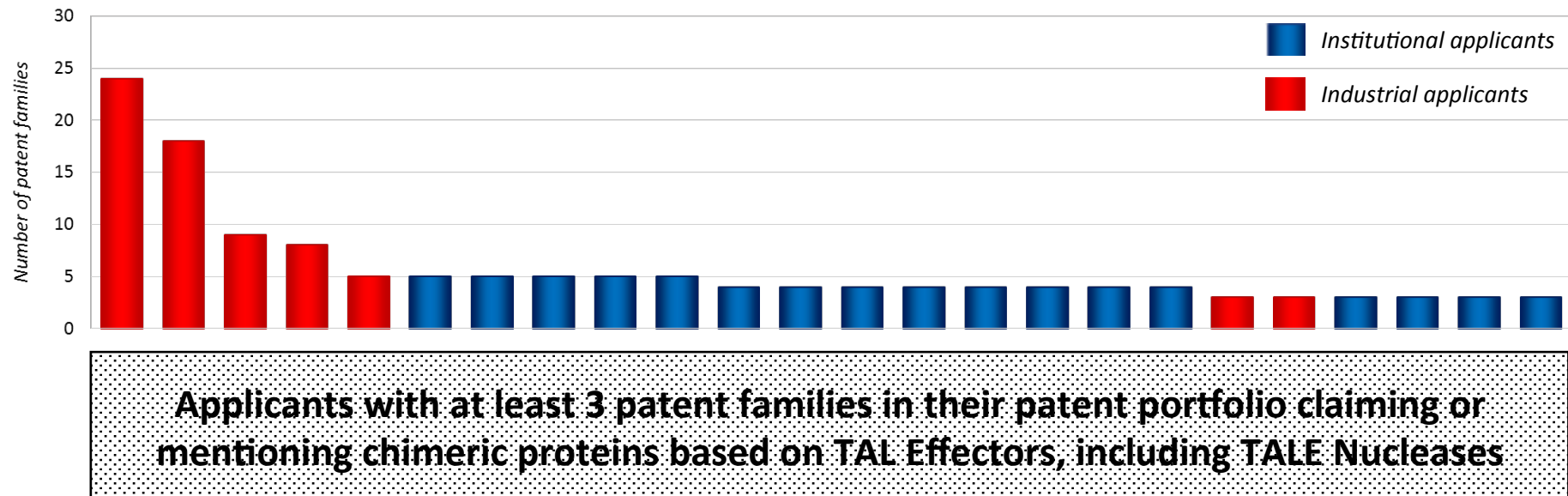


Applicants with at least 4 patent families in their patent portfolio claiming or mentioning chimeric proteins, including nucleases such as TALEN (TALE Nucleases, RGN (RNA-Guided Nucleases)...

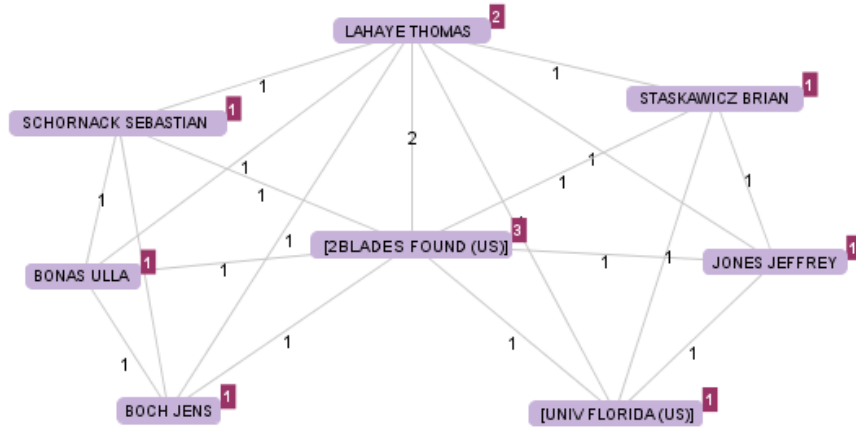
Temporal distribution of patent filings by type of actors (2007-2014)



Main patent applicants (≥ 3 patent families)

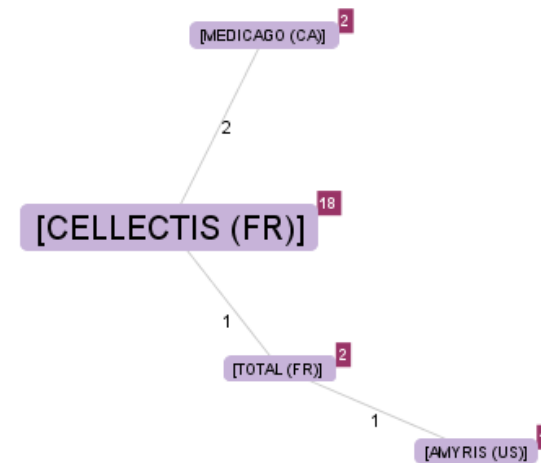


Co-filings between applicants (2) (≥ 2 patent families)



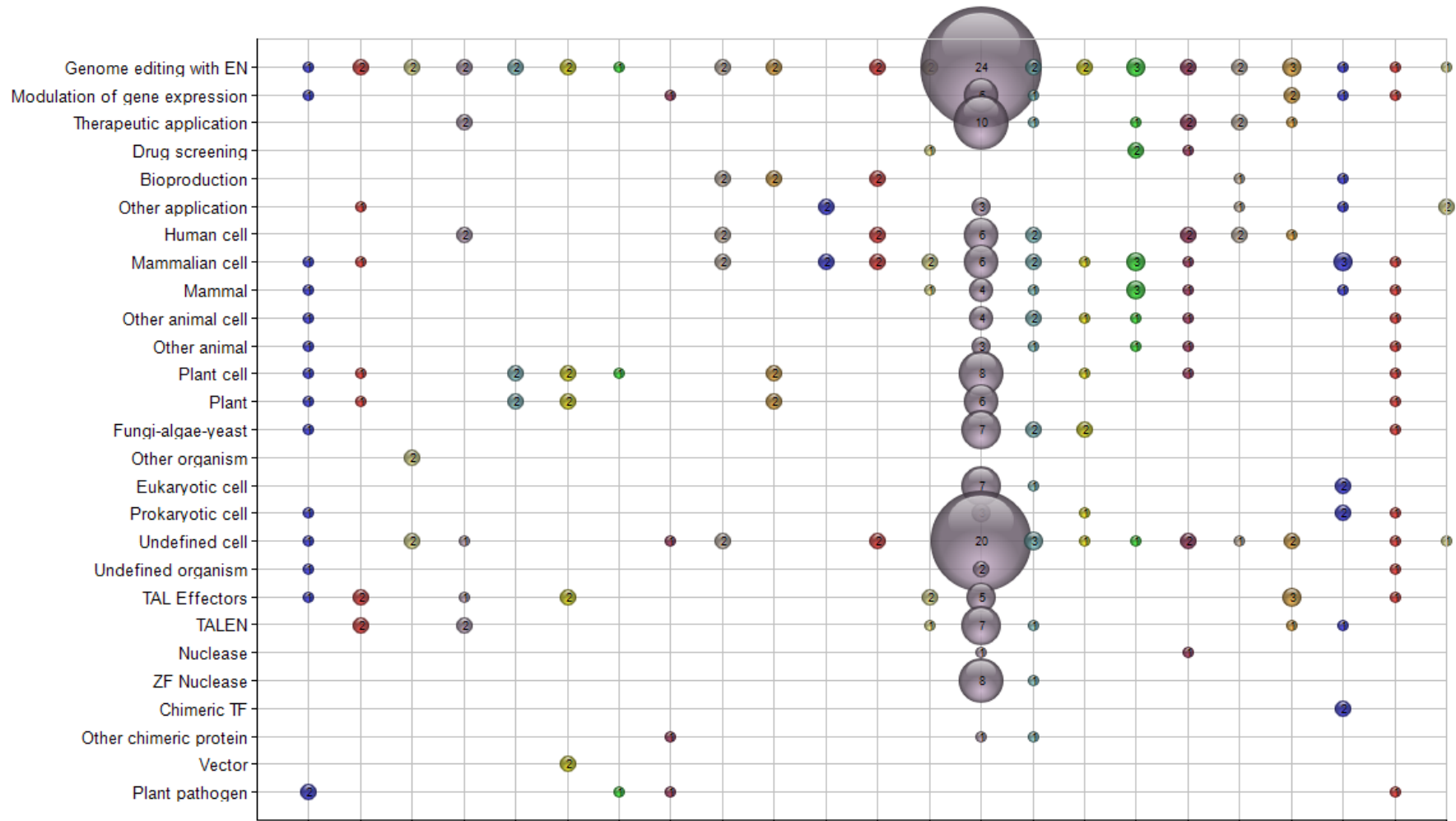
**Other co-filings
between applicants**

**Other co-filings
between applicants**



Breakdown by Claim coverage of patent families

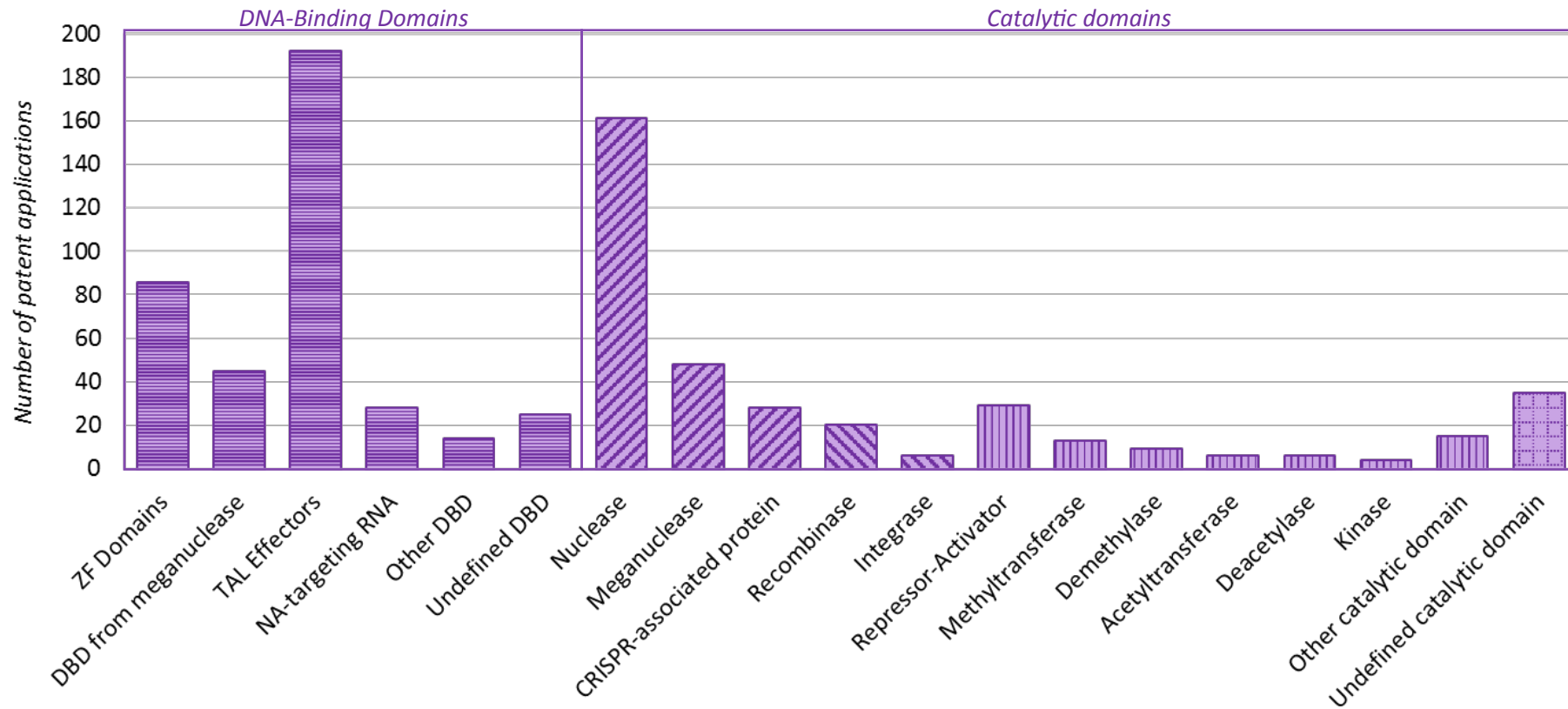
Positioning of the main applicants (3 & 2 patent families)



Breakdown by Claim coverage of patent families covered by applicants with 3 and 2 patent families in their patent portfolio

Breakdown by Components

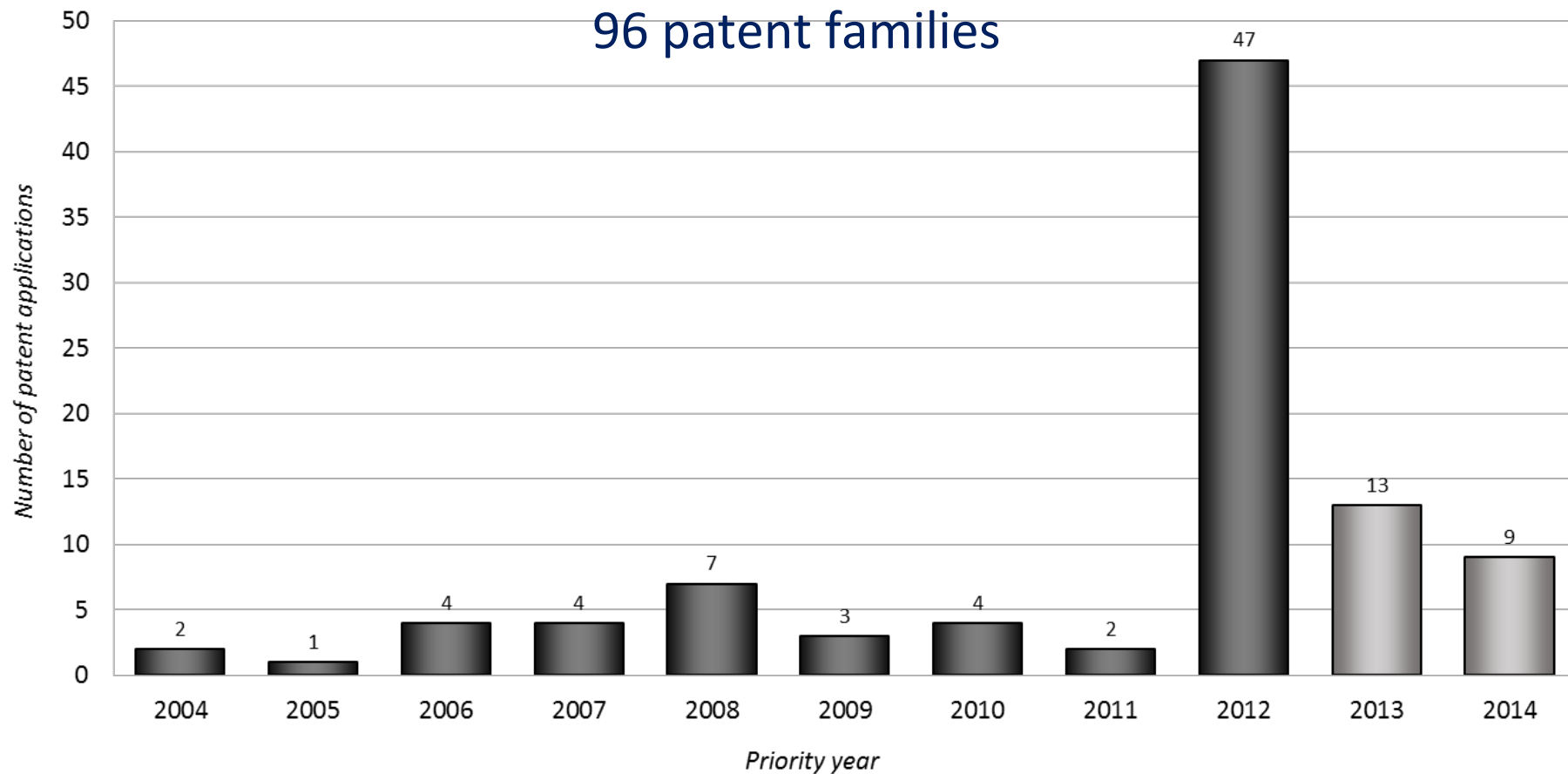
Breakdown of the patent portfolio



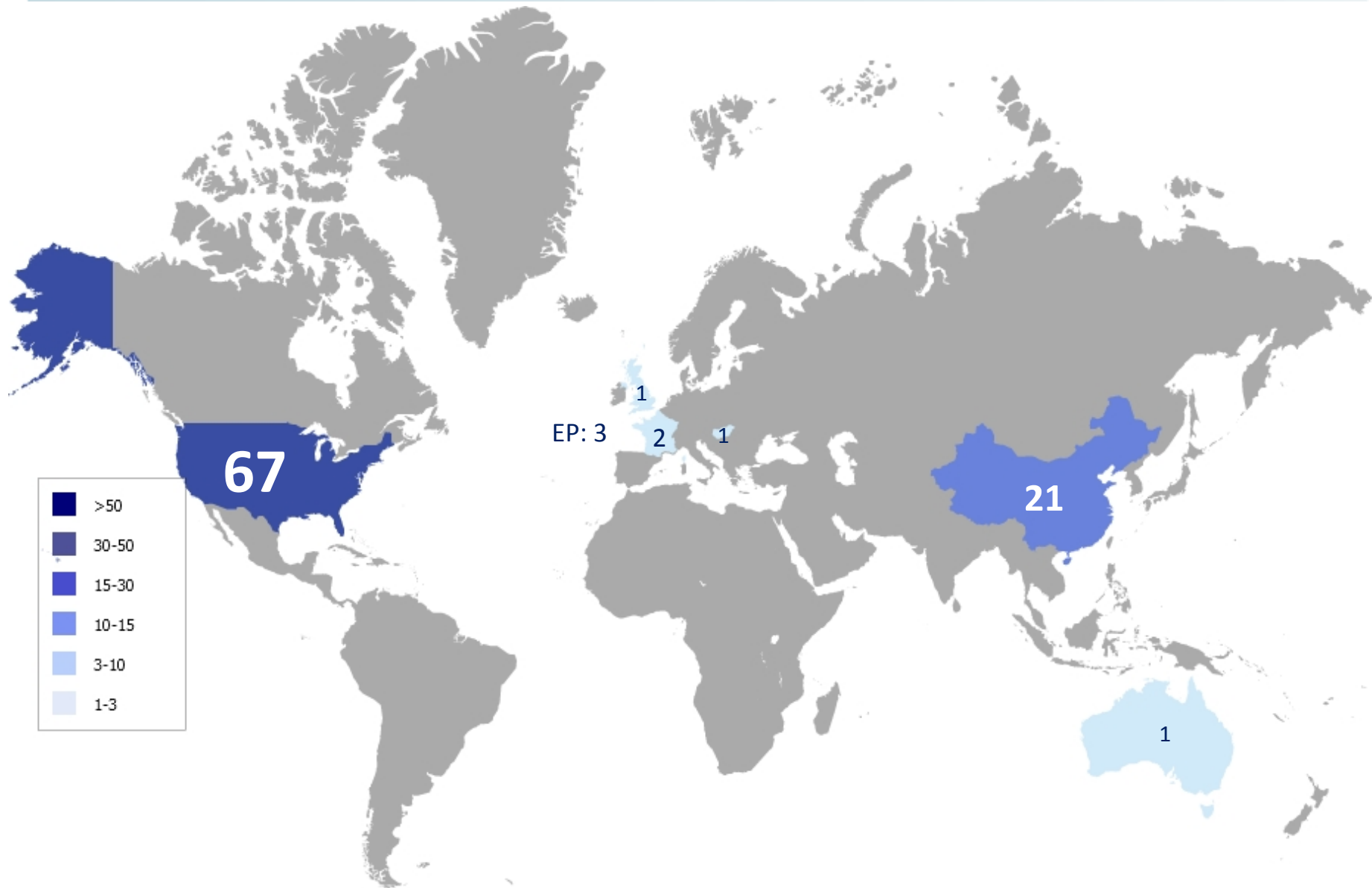
Main forward cited patent families (2)

REPRESENTATIVE PATENT NUMBER	TITLE OF THE REPRESENTATIVE PATENT NUMBER	APPLICANT(S)	NB OF CITATIONS
WO2010054348	PATHOGEN-INDUCIBLE PROMOTERS AND THEIR USE IN ENHANCING THE DISEASE RESISTANCE OF PLANTS	2BLADES FOUND (US)	4 (2 self citat.) (1 cat. X or Y)
Other patent family			
WO2011154393	FUSION PROTEINS COMPRISING A DNA-BINDING DOMAIN OF A TAL EFFECTOR PROTEIN AND A NON-SPECIFIC CLEAVAGE DOMAIN OF A RESTRICTION NUCLEASE AND THEIR USE	HELMHOLTZ ZENTRUM MUNCHEN (DE)	4 (0 self citat.) (0 cat. X or Y)
Other patent family			
WO2011097036	ENGINEERED CLEAVAGE HALF-DOMAINS	SANGAMO BIOSCIENCES (US)	4 (2 self citat.) (0 cat. X or Y)
Other patent family			
WO2013017950	HIGH THROUGHPUT METHOD FOR ASSEMBLY AND CLONING POLYNUCLEOTIDES COMPRISING HIGHLY SIMILAR POLYNUCLEOTIDIC MODULES	CELLECTIS (FR)	3 (3 self citat.) (0 cat. X or Y)
Other patent family			

Temporal distribution of patent filings (2004-2014)

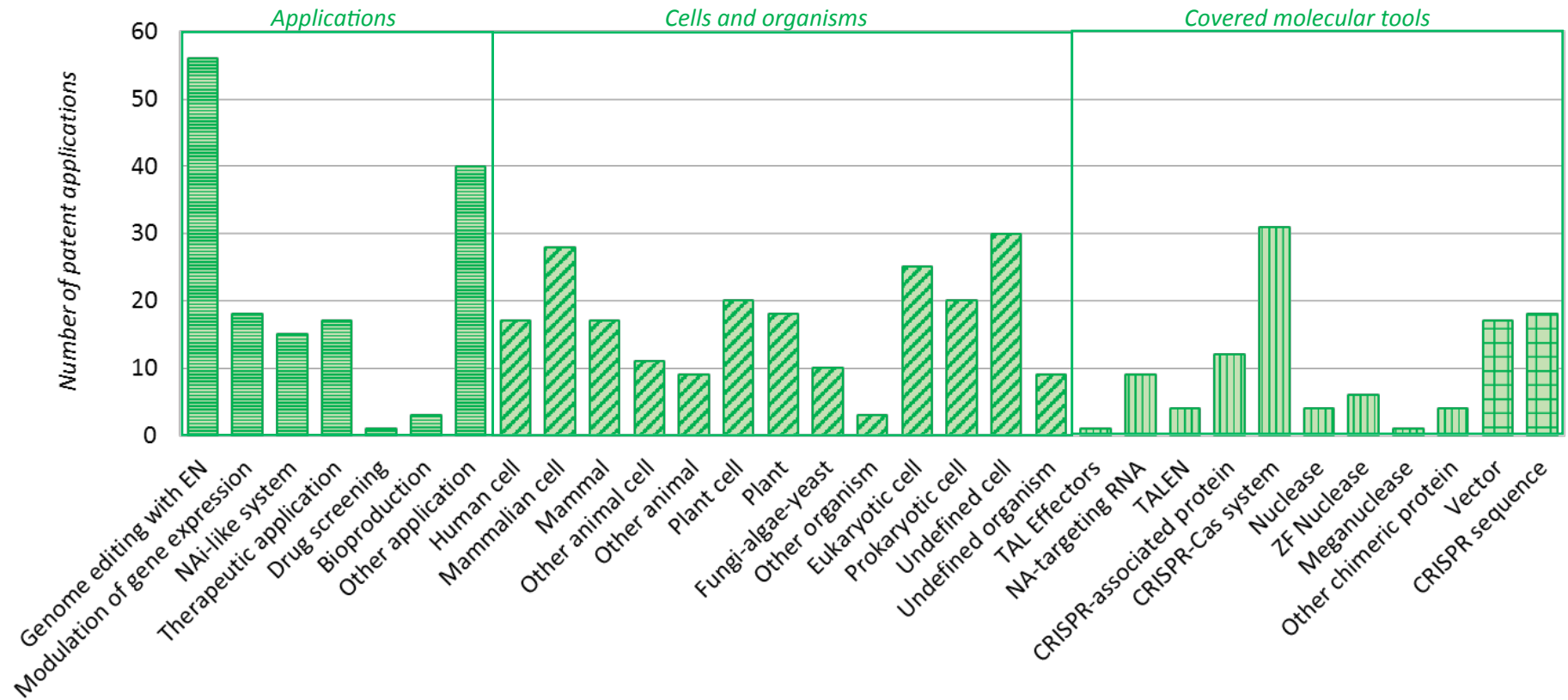


World map of priority filings

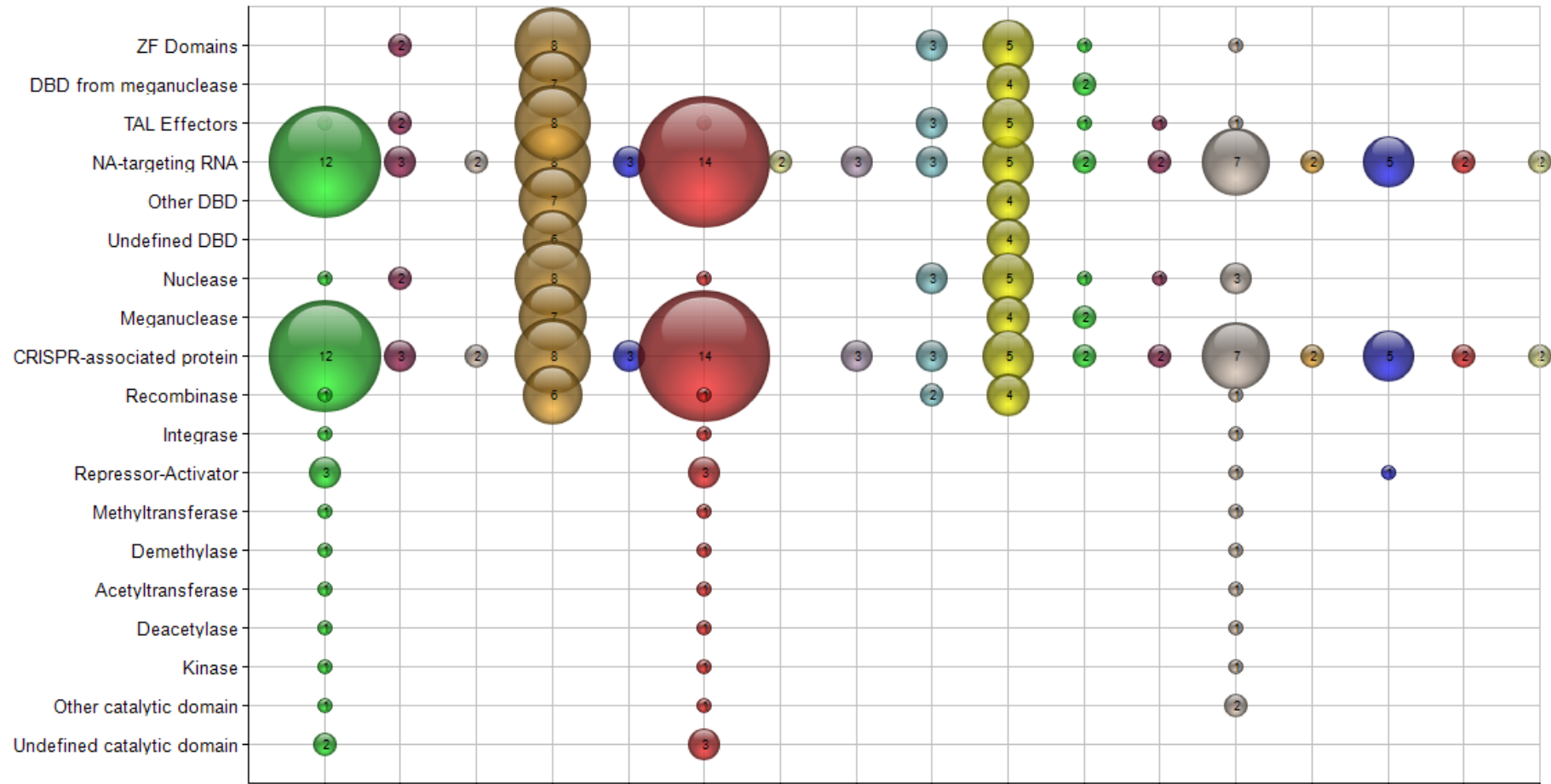


Breakdown by Claim coverage of patent families

Breakdown of the patent portfolio



Breakdown by Components

Positioning of the main applicants (≥ 2 patent families)

Components, including DNA-Binding Domains and Catalytic domains, that have been claimed or mentioned by applicants with at least 2 patent families in their patent portfolio

Access to the interactive and dynamic patent database

Search

Geography

Originating countries

Protected countries

Extended countries

Dates

Organizations

Authors

Custom Fields

Patents

IPC

ECLA

1

2

3

4

IPC	#Doc	Description
B0113/00	107	Containers or dishes for laboratory use, e.g. laboratory glassware
C12Q1/68	104	Measuring or testing processes involving enzymes or micro-organisms, involving nucleic acids
C12M1/34	96	Apparatus for enzymology or microbiology, Measuring or testing with condition measuring or sensing means, e.g. colony counters
G01N33/53	89	Investigating or analysing materials by specific methods not covered by groups , Biological material, e.g. blood, urine, Chemical analysis of biological material, e.g. blood, urine, Immunoassay
G01N33/543	77	Investigating or analysing materials by specific methods not covered by groups , Biological material, e.g. blood, urine, Chemical analysis of biological material, e.g. blood, urine, Immunoassay, with an insoluble carrier for immobilising immunochemicals
C12M1/00	68	Apparatus for enzymology or microbiology
G01N33/00	67	Investigating or analysing materials by specific methods not covered by groups
C12Q1/00	58	Measuring or testing processes involving enzymes or micro-organisms
G01N37/00	52	Details not covered by any other group of this subclass
G01N21/00	49	Investigating or analysing materials by the use of optical means, i.e. using infra-red, visible, or ultra-violet light
B0119/00	40	Chemical, physical, or physico-chemical processes in general
C12M3/00	35	Tissue, human, animal or plant cell, or virus culture apparatus
G01N33/48	35	Investigating or analysing materials by specific methods not covered by groups , Biological material, e.g. blood, urine

document: C/12

MICROGELS AND MICROTISSUES FOR USE IN TISSUE ENGINEERING

Patent Number: WO/2012/155110 A1
Date: 2011
Priority Number: US/12051100
Citations: US2006270032 US/0750796
Authors: Bhatia Sangeeta N, Li Chery Y
Affiliations: MASSACHUSETTS INST OF TECHNOLOGY
Short Affiliations: [M]NVS CAMBRIDGE MA US
Descriptors: Us/affiliation - Patent
IPC Class: C12N01/00
ECLA: A48900, 2, C11090, 267E29242, 977880000
IPC: C12N5/0012, C12N5/006, C12N5/008, C12N5/01, C12N5/100, C12N5/102, C12N5/330
Abstract: The present invention features microgels and microtissues for use in tissue engineering. Featured is a microencapsulation device for making microgels and/or microtissues via an emulsion technology. Also featured are methods of making higher ordered structures that mimic tissue structures. Methods of us are also featured. [00B] The invention provides methods of encapsulating cells or other biologically relevant molecules within microgels or microtissues on a micro fluidic device, functionalized with a variety of surface topographies with the complementary ligand (e.g., a trapping ligand, e.g., complementary single-stranded DNA), including patterns of templating sites or other topographies. The present invention features microgels and microtissues for use in tissue engineering in particular the present invention features methods for fabricating these structures and processes by which they are used.

Bibliographic data: WO/2012/155110 (A1) — 2012-11-15

MICROGELS AND MICROTISSUES FOR USE IN TISSUE ENGINEERING

Page bookmark: WO/2012/155110(A1) - MICROGELS AND MICROTISSUES FOR USE IN TISSUE ENGINEERING

Inventor(s): BHATIA SANGEETA N [US]; LI CHERY Y [US];
Applicant(s): MASSACHUSETTS INST TECHNOLOGY [US]; BHATIA SANGEETA N [US]; LI CHERY Y [US];
Classification: - international: C12N5/00
 - cooperative: C12N5/0012; C12N5/006; C12N5/008; C12N5/100; C12N5/102; C12N5/330
Application number: WO/2012/155110
Publication number: US/2011/1484987P/20110511
Priority number(s): US/2011/1484987P/20110511

Abstract of WO/2012/155110 (A1)

Further analysis

- Patent portfolios of specific applicants
- Patents filed in a country (US...) or a region (EP...), for a defined period
- Patents covering a application, a technology, or a specification defined by/with the customer
- Legal status of relevant patents; claim coverage prosecution monitoring
- Zoom on dedicated technology or functional subsets

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- an **analysis of the patent landscape**, covering 265 patent families, worldwide
- a **synthesis of IP strategy findings**, to visualize key trends in terms of patent applicants, collaboration networks, competitor technology positioning, key inventors and R&D white spaces out of the landscape
- an **on-line access to the selected patent set**, so you can visualize, navigate, focus and extract the most relevant patent data according to your specific needs.



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