MEDICAMENTOS INNOVADORES
Plataforma Tecnológica Española

Plataforma de Mercados Biotecnológicos
(Spanish Biotech Platform)

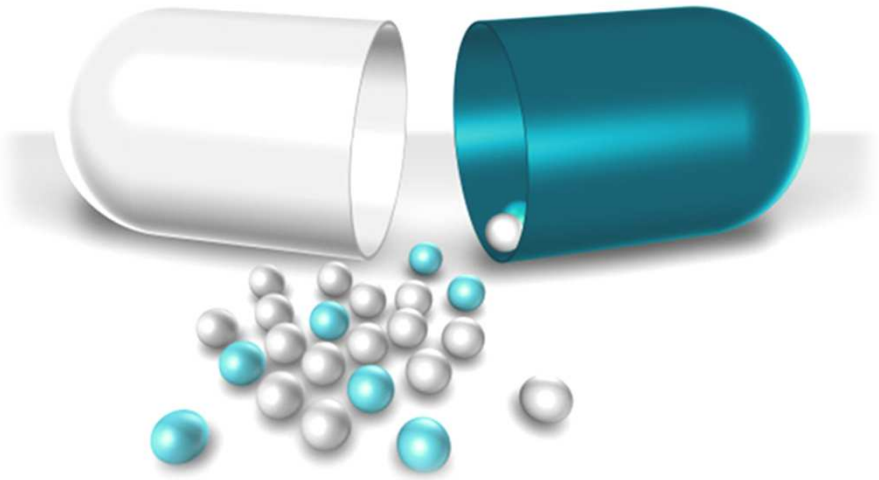
NANOMED SPAIN

PLATAFORMA ESPAÑOLA INNOVACIÓN TECNOLOGÍA SANITARIA

# Pharma - Biotech - Academia Cooperation

## Collaborative Innovation @ FERRER

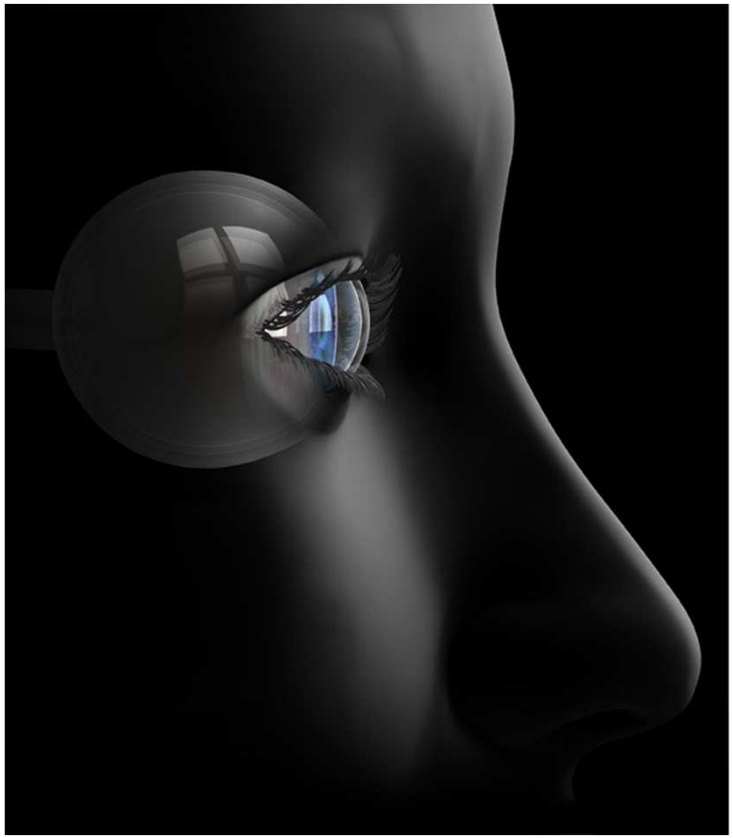
### Joining our Efforts, Sharing our Future




**Andrés G. Fernández**
**Innovation in Biotechnology**
***Grupo Ferrer***


ferrer

**March 2013**



# To be *sustainable* or not to be

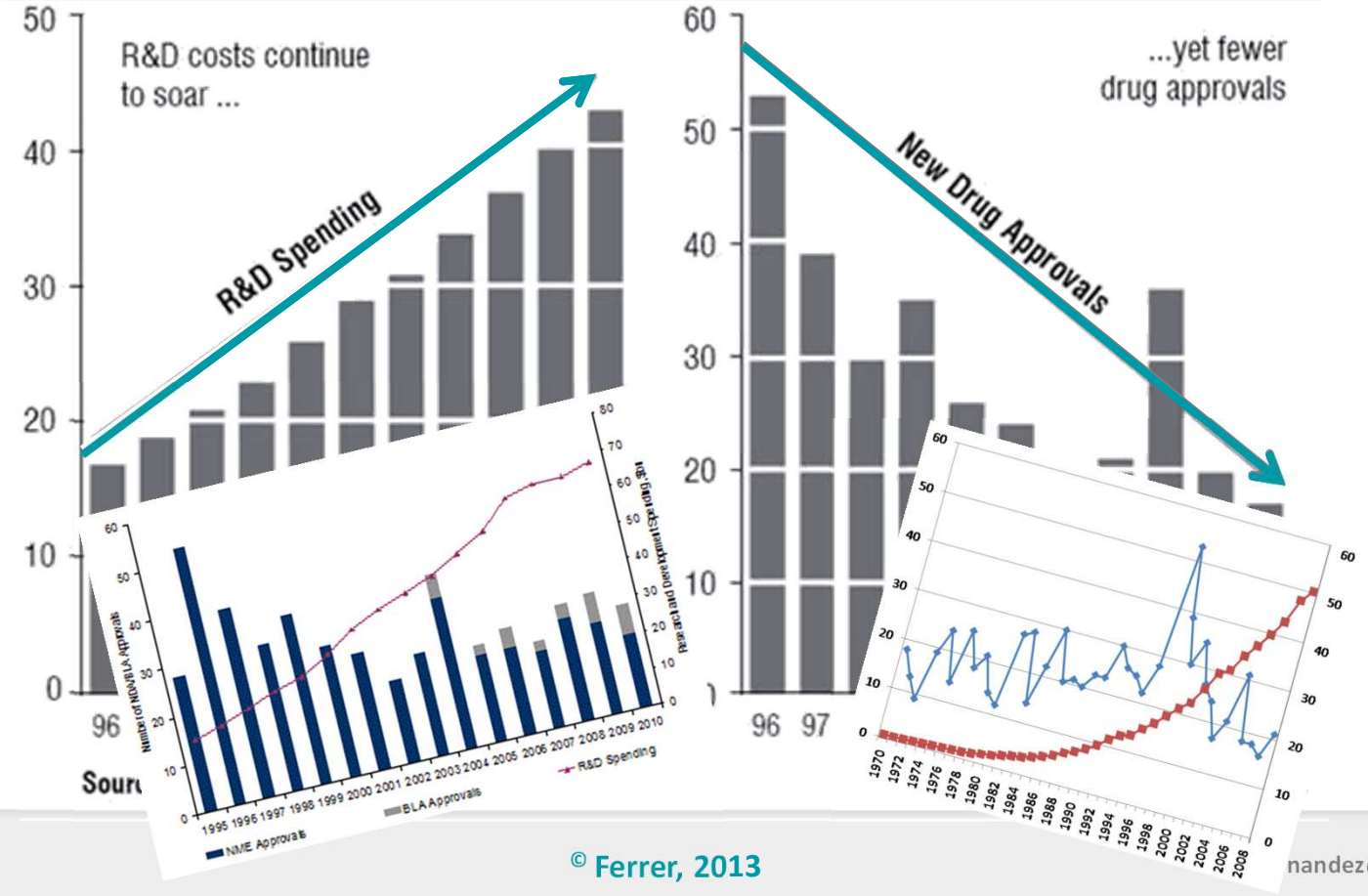


agfernandez@ferrergrupo.com

# Sustainable Innovation

## Decrease on productivity...

### R&D spending vs. FDA approvals






nandez@ferrergrupo.com

# Sustainable Innovation

**1982**

| | |
|---|---|
| Price: | 595 USD |
| GDP per capita (SP): | 6.877 USD |
| Equivalence: | 32 days |

**2010**


| | |
|---|---|
| Price: | 631 USD |
| GDP per capita (SP): | 31.700 USD |
| Equivalence: | 7 days |



agfernandez@ferrergrupo.com

# Sustainable Innovation

## Is drug innovation sustainable ?

**1992**


| | |
|---|---|
| Price/dose: | 10 USD |
| GDP per capita (SP): | 14.680 USD |
| Equivalence: | 0.15 days |

**2010**

| | |
|---|---|
| Price/dose: | 2.853 USD |
| GDP per capita (SP): | 31.700 USD |
| Equivalence: | 33 days |



agfernandez@ferrergrupo.com

# Sustainable Innovation

## Is drug innovation sustainable ?

**Glybera *(UniQure)***

July 20, 2012 8:40 pm

FT FINANCIAL TIMES

### Gene therapy wins Europe approval

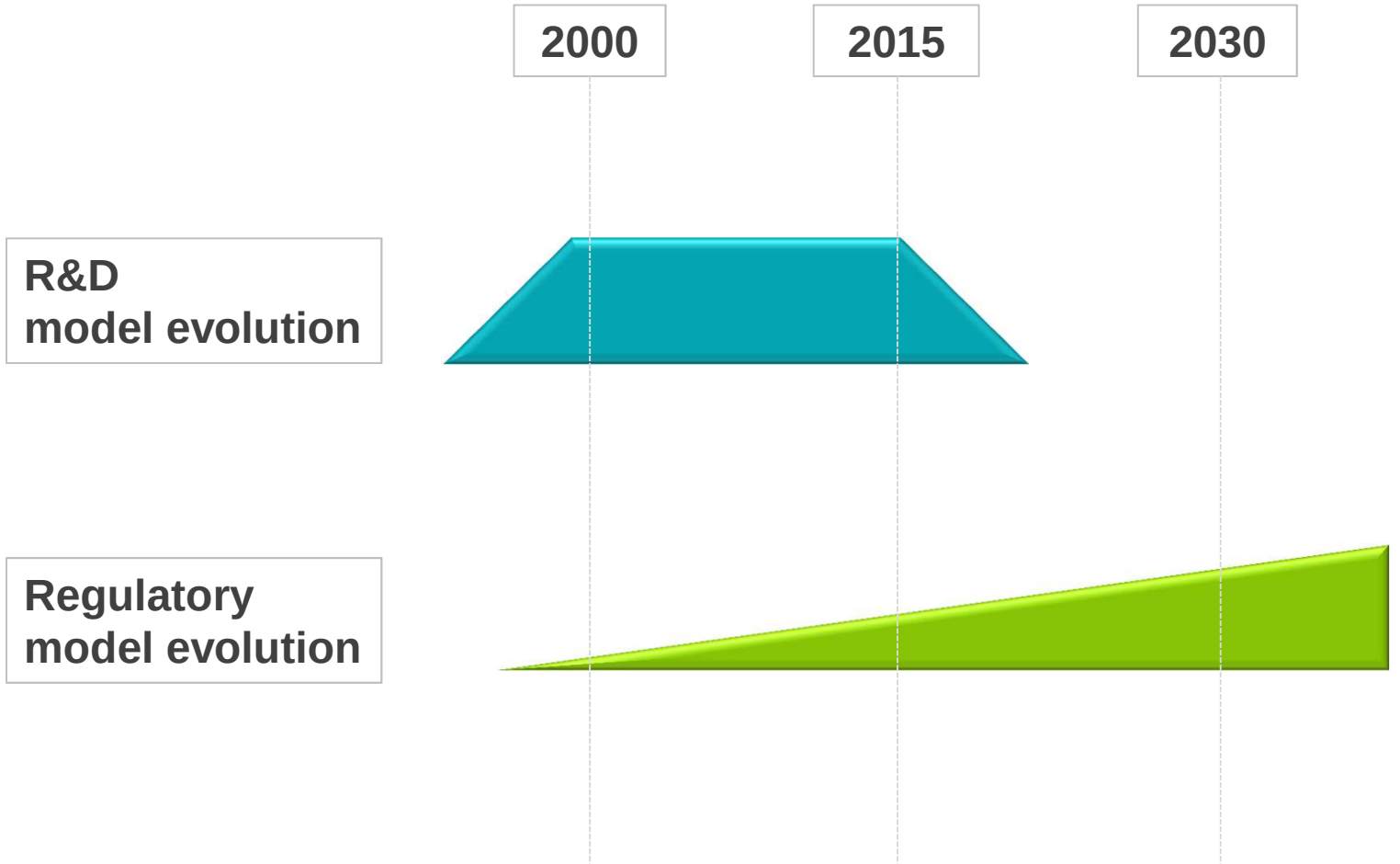
By Andrew Jack in London

Europe's regulators have authorised the western world's first gene therapy, paving the way for a breakthrough treatment for an extremely rare genetic disease that**, at more than €1m per patient**, will be the most expensive medicine on the planet.



agfernandez@ferrergrupo.com

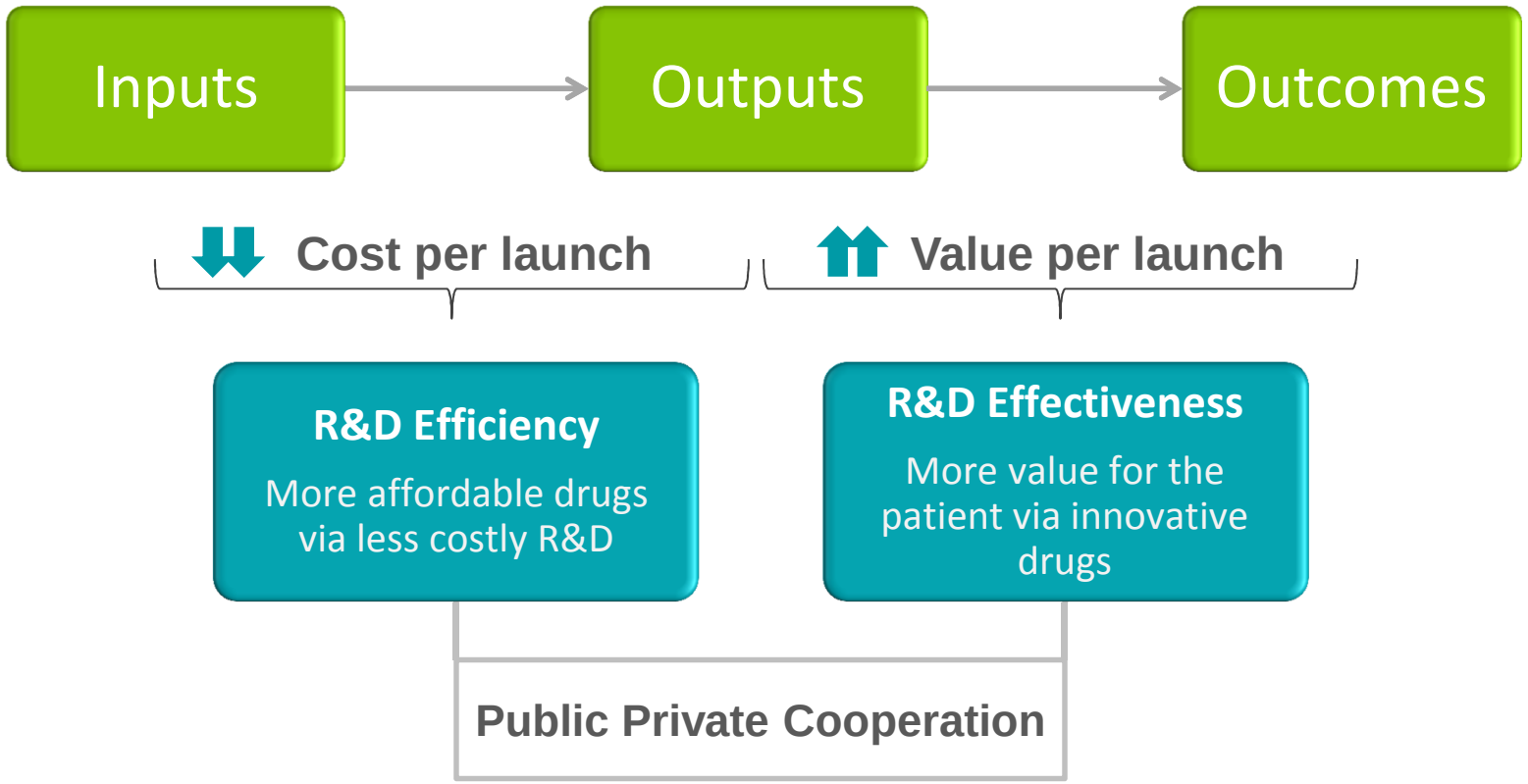
# Biopharma Sustainability Challenges






agfernandez@ferrergrupo.com

# R&D model evolution: Challenges




*Modified from S.M. Paul et al. (2010)*



agfernandez@ferrergrupo.com

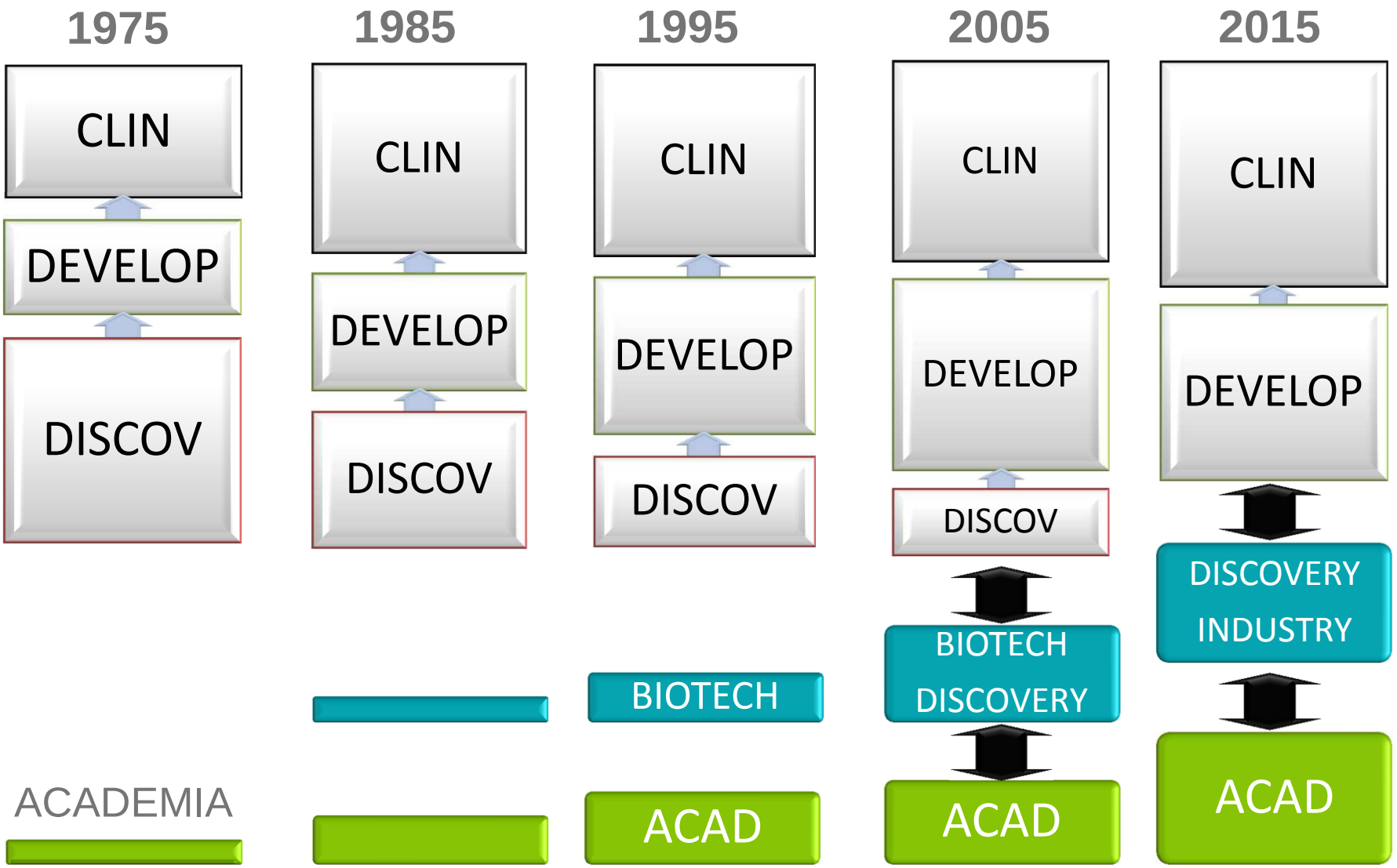
# R&D **Efficiency**


**Paul Isherwood**
GlaxoSmithKline
Director of Innovation



agfernandez@ferrergrupo.com

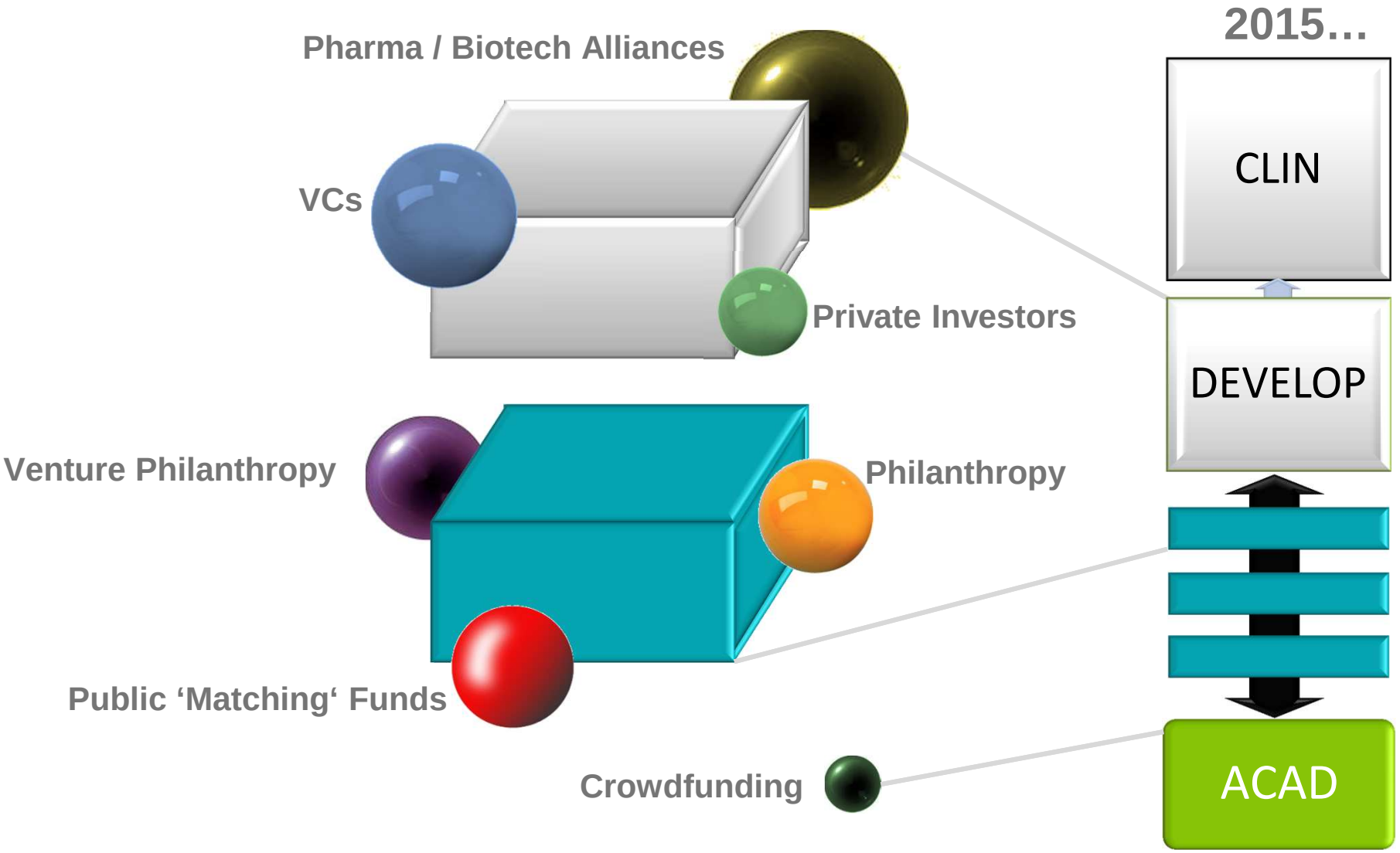
# R&D **Efficiency**






agfernandez@ferrergrupo.com

# R&D **Efficiency**






agfernandez@ferrergrupo.com

# R&D **Efficiency**

| COUNTRY | GDP (M USD) | R&D (% GDP) | R&D (M USD) | # patents (triadic, 2010) |
|---|---|---|---|---|
| **SWEDEN** | 520.256 | 3,37 | **17.532** | **882** |
| **SWITZERLAND** | 622.855 | 3,0 | **18.685** | **847** |
| **SPAIN** | 1.340.266 | 1,33 | **17.825** | **242** |

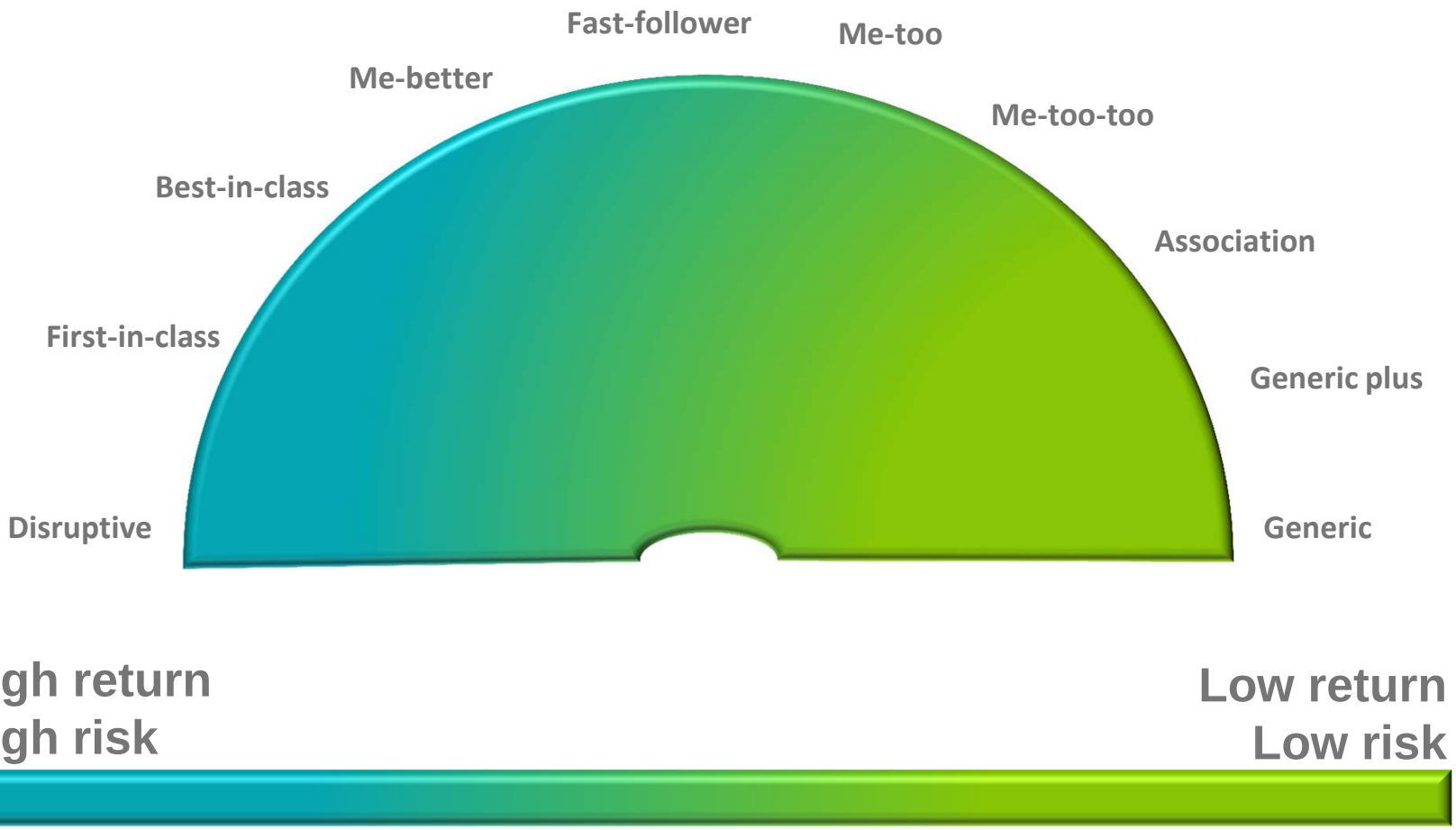
*Source: OECD Factbook 2011-2012: Economic, Environmental and Social Statistics*



agfernandez@ferrergrupo.com

# R&D **Effectiveness**

## The **innovation** factory: a classical view






agfernandez@ferrergrupo.com

# R&D **Effectiveness**

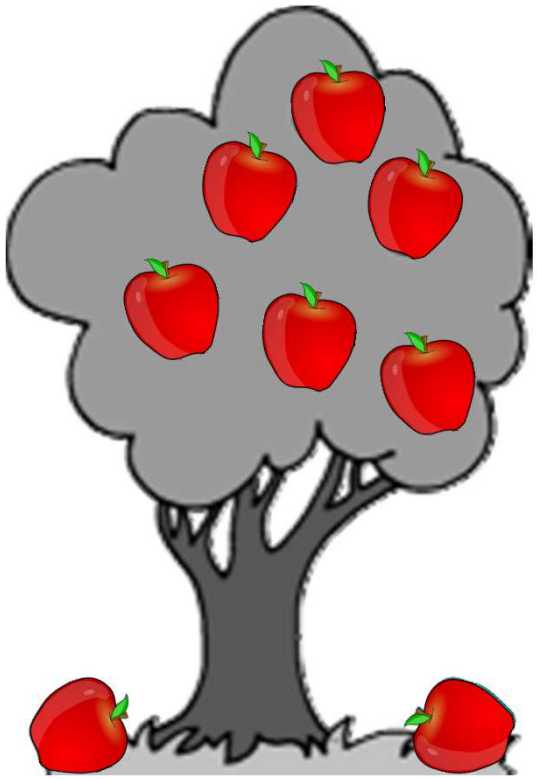
## The **innovation** factory: **time to change**




agfernandez@ferrergrupo.com

# **Non-Added** Value = **high** risk

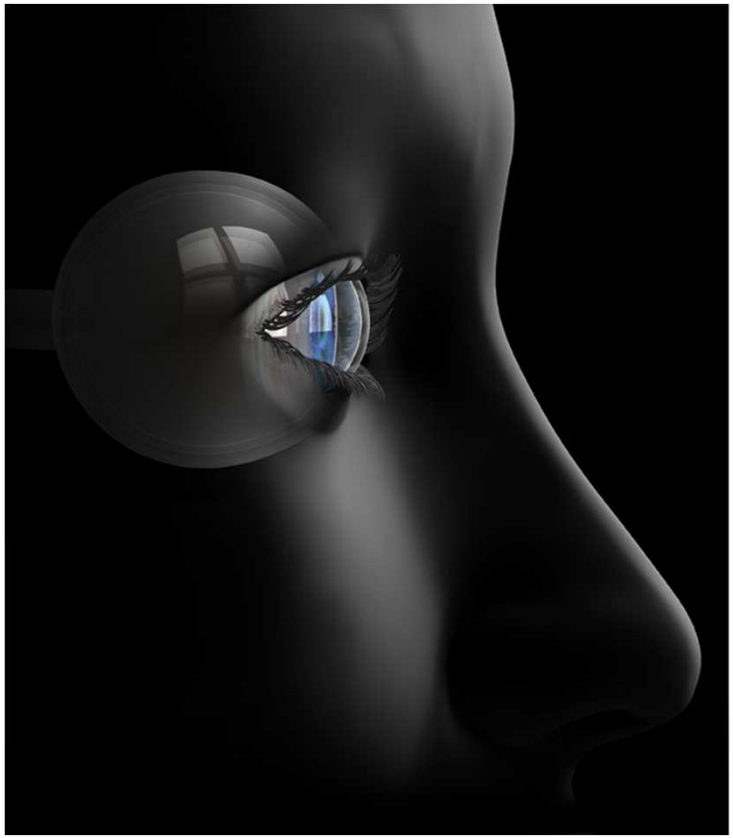
## Technological platforms: their pivotal importance







agfernandez@ferrergrupo.com



# Our model



agfernandez@ferrergrupo.com

# Collaborative Innovation @ Ferrer

## Area of Innovation in Biotechnology

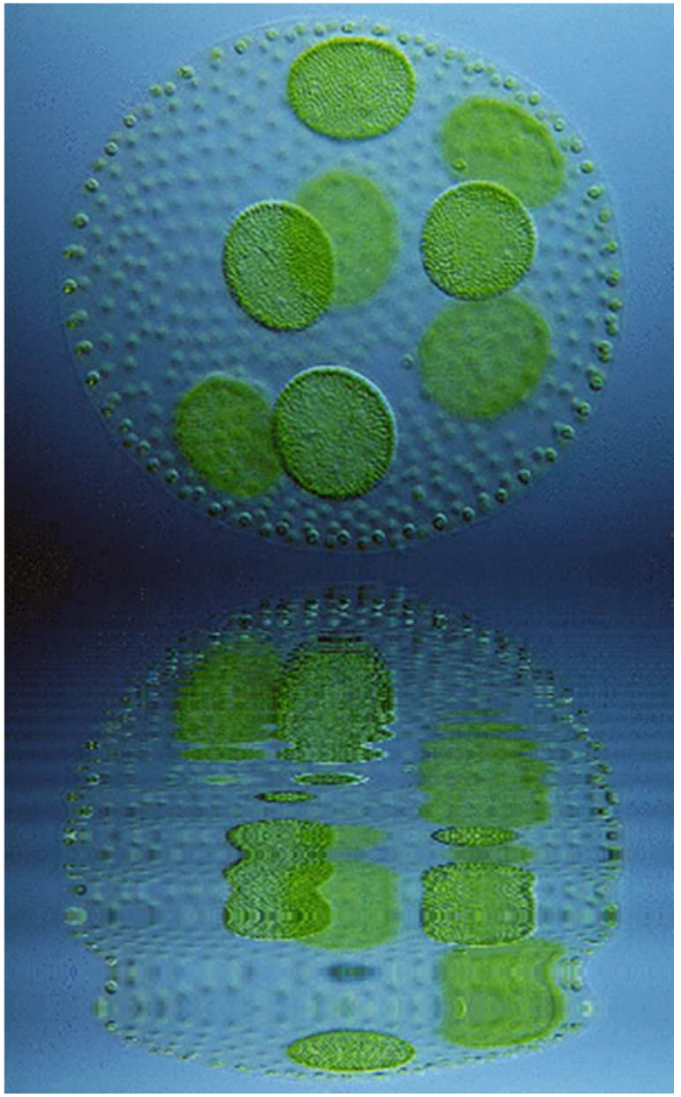

- Focused on expanding Collaborative Research.
- Identifying, incorporating and (co-)managing projects originated outside the company.
- Fully independent of internal R&D funds.



agfernandez@ferrergrupo.com

# Collaborative Innovation @ Ferrer

**We like to consider the world as our lab...**







agfernandez@ferrergrupo.com

# What do we look for

## Projects yielding **high added value** products

**Next slides will define our…**

- Development Segment Target (Entry Point)
- Main Strategic Areas
- Preferred Technological Platforms

but, we do also like **OPPORTUNITIES**

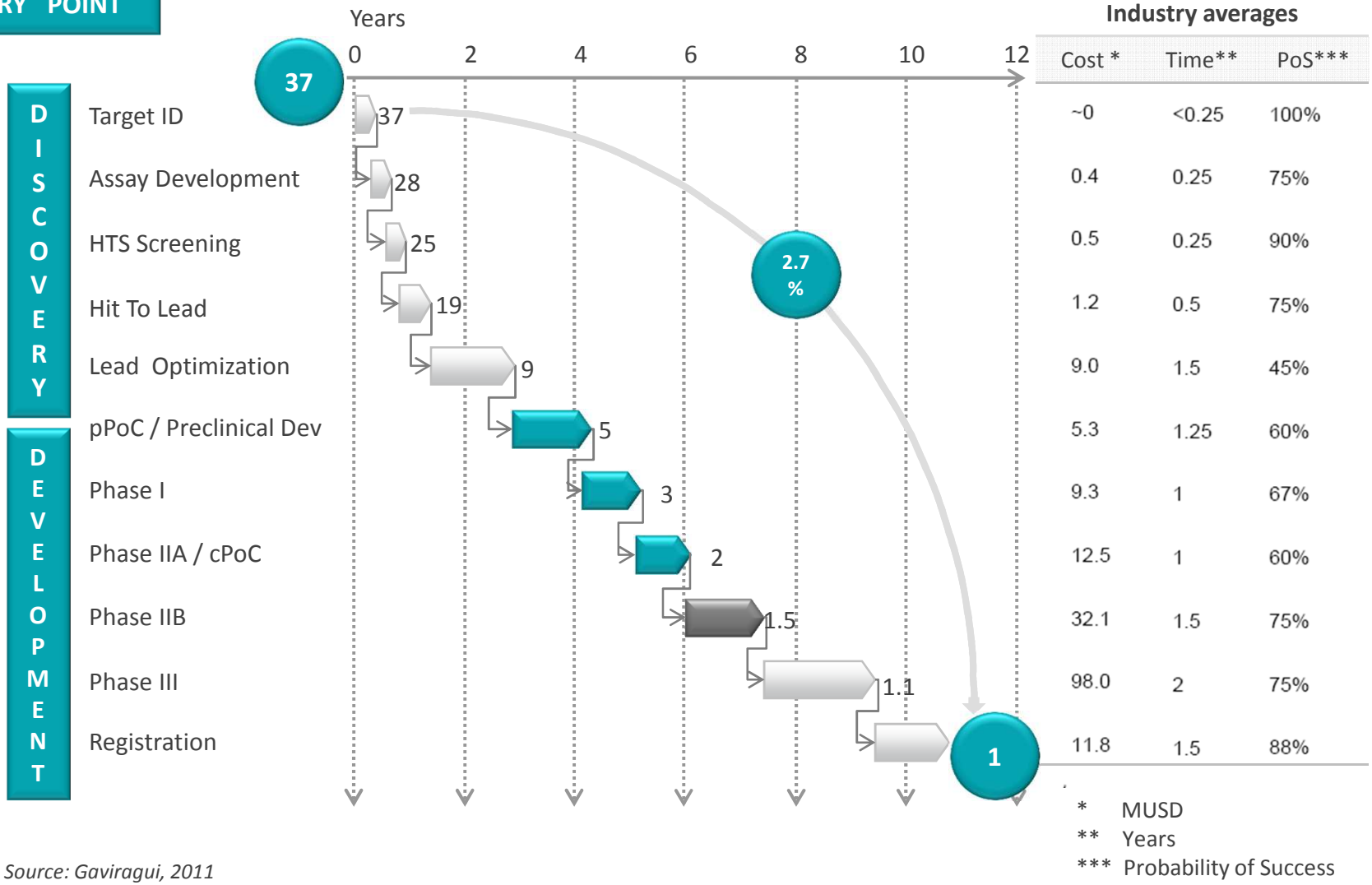




agfernandez@ferrergrupo.com

# What do we look for

ENTRY POINT




| Industry averages | | |
|---|---|---|
| Cost * | Time** | PoS*** |
| ~0 | <0.25 | 100% |
| 0.4 | 0.25 | 75% |
| 0.5 | 0.25 | 90% |
| 1.2 | 0.5 | 75% |
| 9.0 | 1.5 | 45% |
| 5.3 | 1.25 | 60% |
| 9.3 | 1 | 67% |
| 12.5 | 1 | 60% |
| 32.1 | 1.5 | 75% |
| 98.0 | 2 | 75% |
| 11.8 | 1.5 | 88% |

* MUSD
** Years
*** Probability of Success

*Source: Gaviragui, 2011*

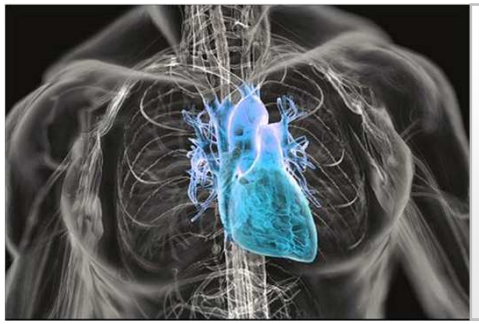




agfernandez@ferrergrupo.com

# What do we look for

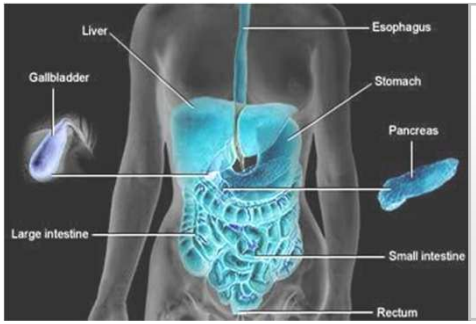
## Main Strategic Areas



Cardiovascular

Neurology

Psychiatry



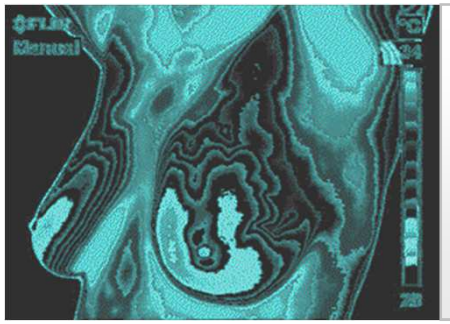

Gastrointestinal



agfernandez@ferrergrupo.com

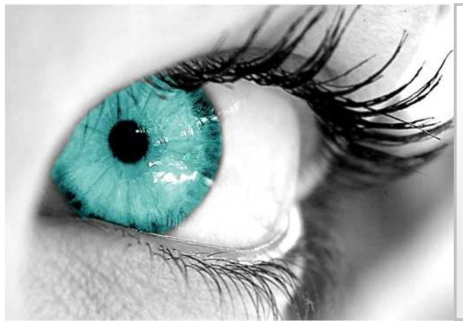
# What do we look for

## Main Strategic Areas

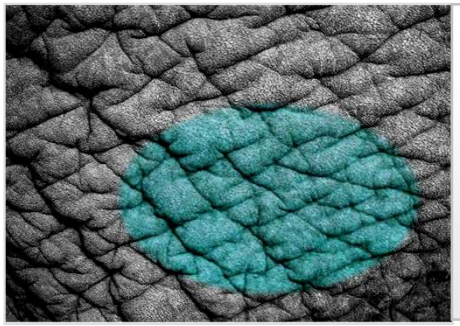


Oncology

Oncology support



Ophthalmology



Dermatology

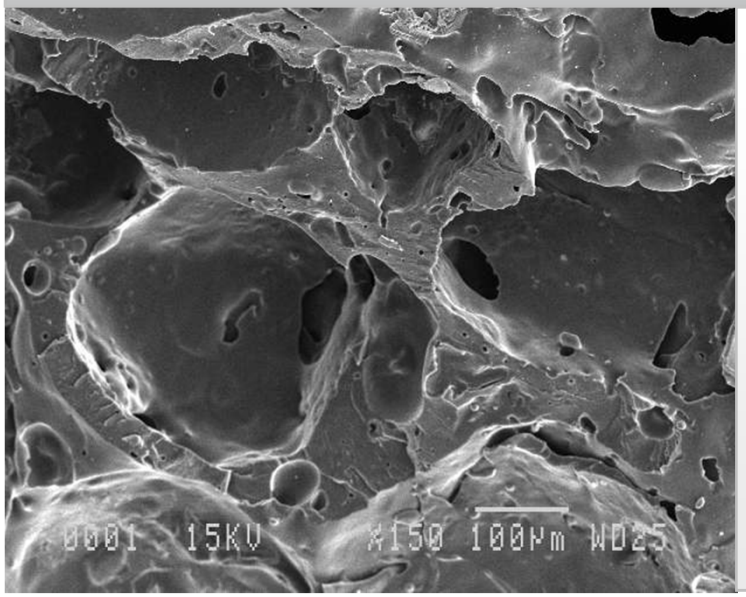


agfernandez@ferrergrupo.com

# What do we look for

## Preferred technological platforms

### Regenerative Medicine




- Ophthalmology
- CNS
- Specific opportunities
- Technology scouting:
  - Reprogramming evolution
  - New biomaterials

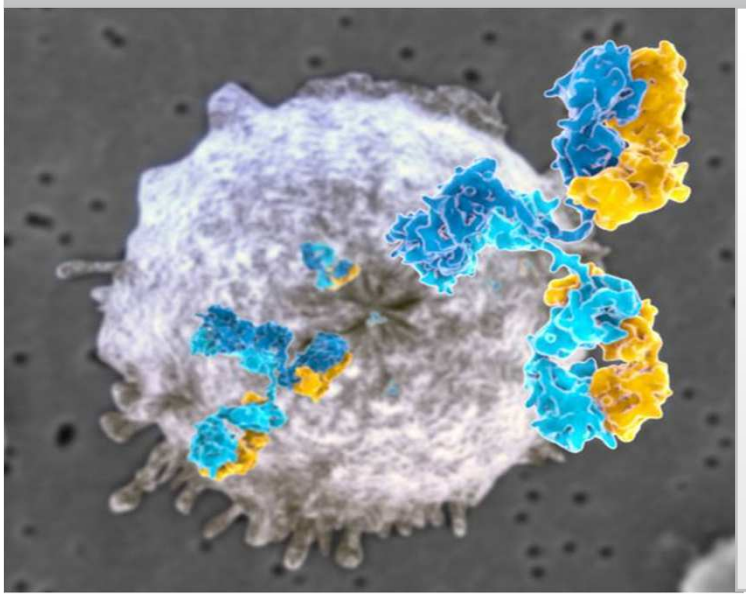


agfernandez@ferrergrupo.com

# What do we look for

## Preferred technological platforms

### New Drug Therapies: antibodies



- New Generation Antibodies
  - LMW: Nanobodies
  - Bispecific – Trispecific antibodies

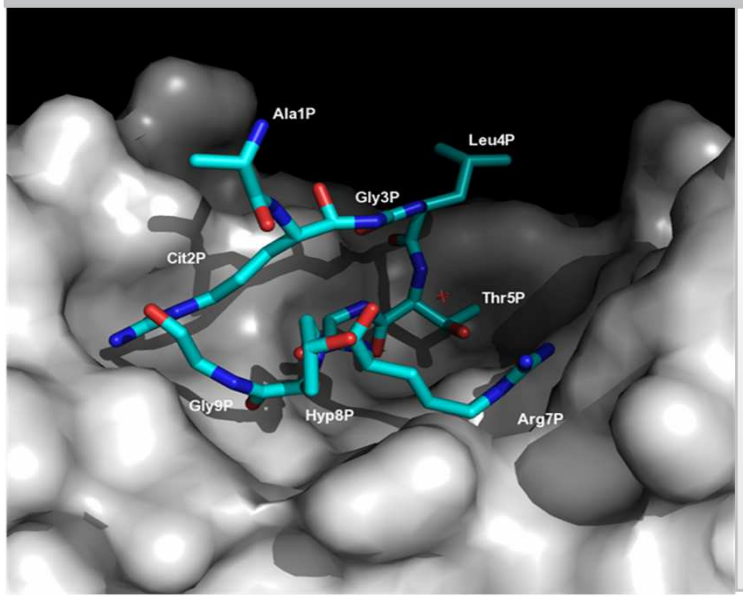


agfernandez@ferrergrupo.com

# What do we look for

## Preferred technological platforms

### New Drug Therapies: New GPCRs modulators




- Deorphanised GPCRs: focus in CNS
- "Valued" Oligomeric GPCRs: focus in CNS
- PAM, NAM & bitopics discovery technologies or opportunities

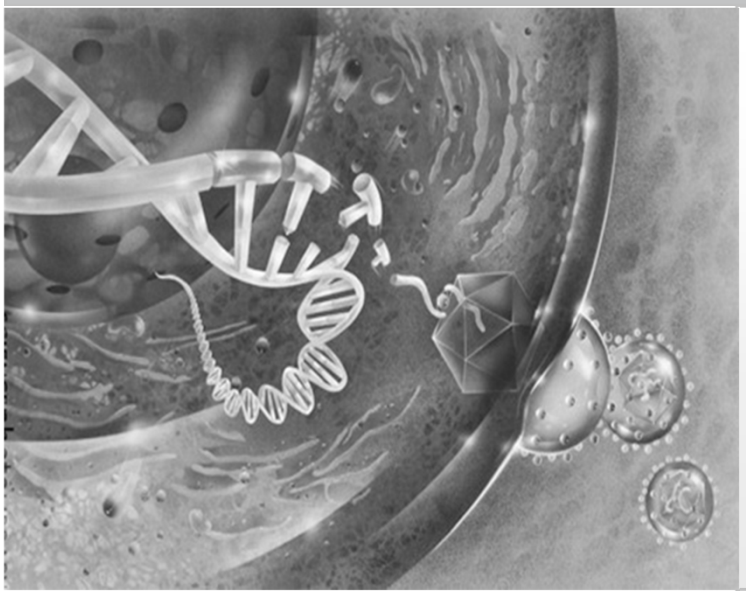


agfernandez@ferrergrupo.com

# What do we look for

## Preferred technological platforms

### Gene Therapies



- Plasmids
- Very specific/singular opportunities in:
  - siRNA
  - Antisense
  - Oncolytic viruses



agfernandez@ferrergrupo.com

# What do we look for

## Preferred technological platforms

**Repositioning**

- Strong IP status
- Fast development



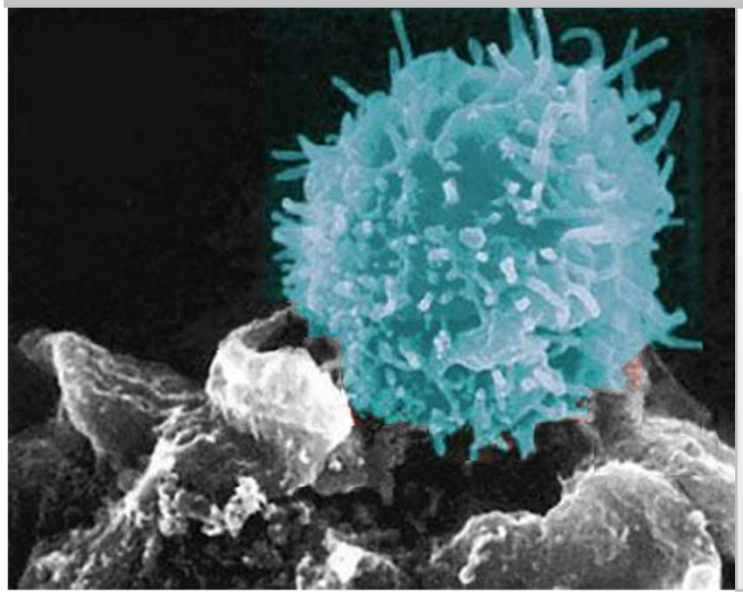


agfernandez@ferrergrupo.com

# What do we look for

## Preferred technological platforms

**New Protein Production or Delivery Technologies applied to**



- Rare diseases
  - Protein deficiency
- Very specific opportunities in therapeutic vaccines
  - Advanced stage of development

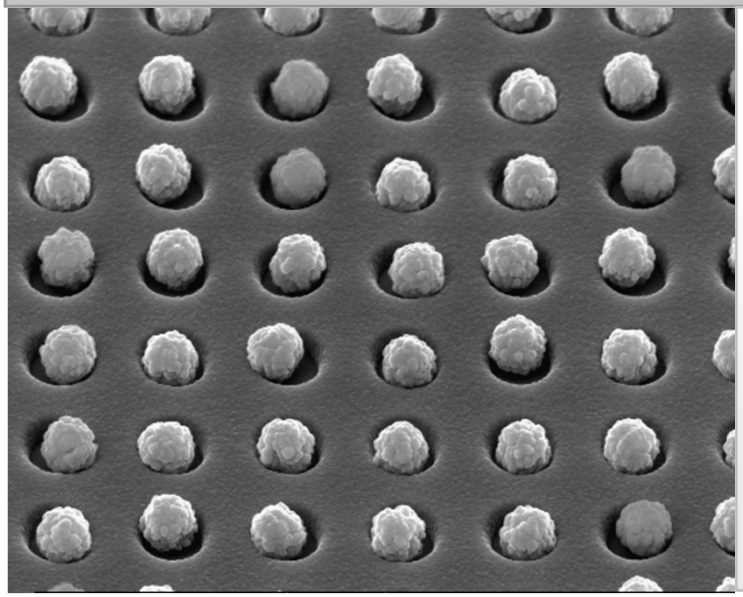


agfernandez@ferrergrupo.com

# What do we look for

## Preferred technological platforms

**New Frontiers in Personalized Medicine**



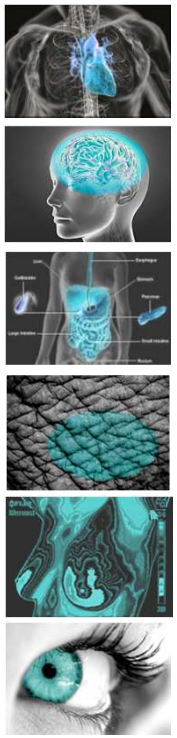
- Theranostics
- Epigenetics
- Metabolomics
- Transcriptomics
- Non-image based CNS diagnostic tools

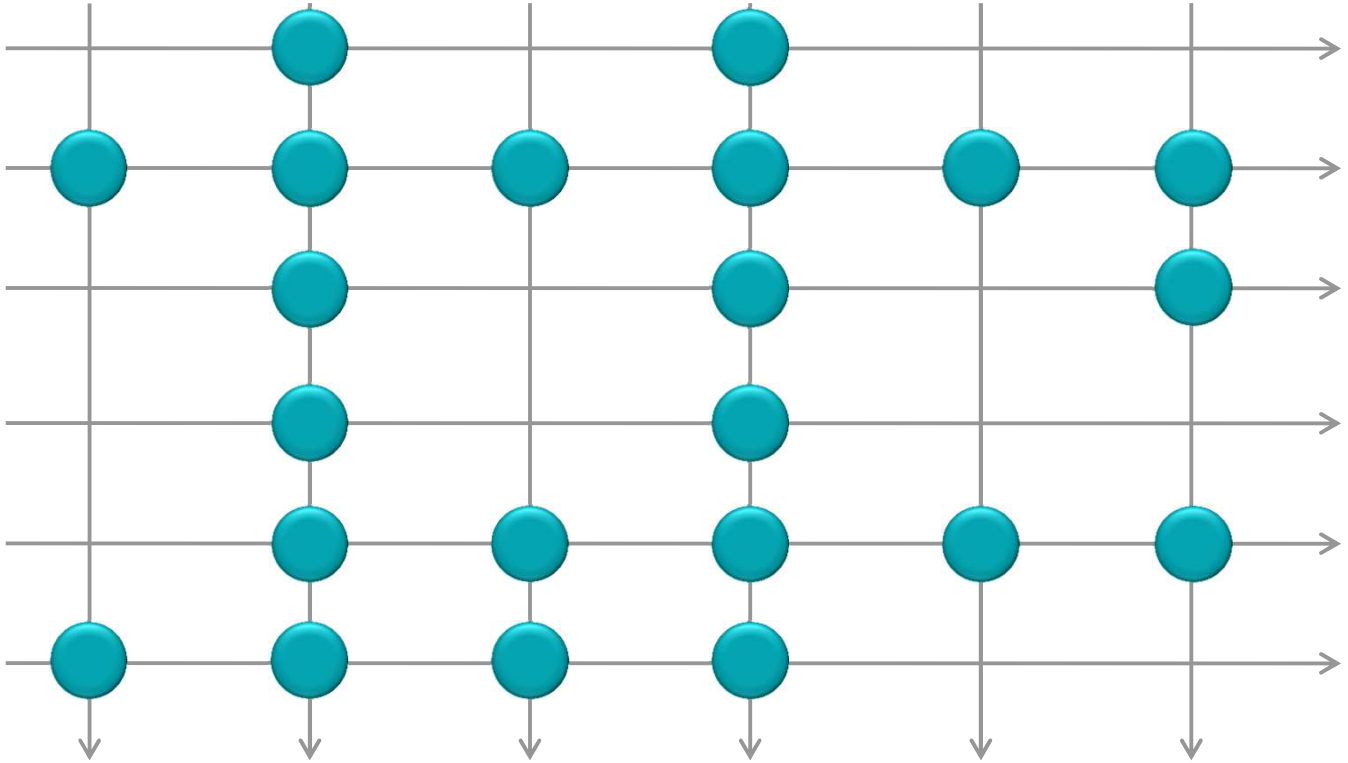


agfernandez@ferrergrupo.com

# What do we look for

Reg Med | New Drug | Gene Th. | Reprof. | Biolog. | Theranos/ Diagnos.





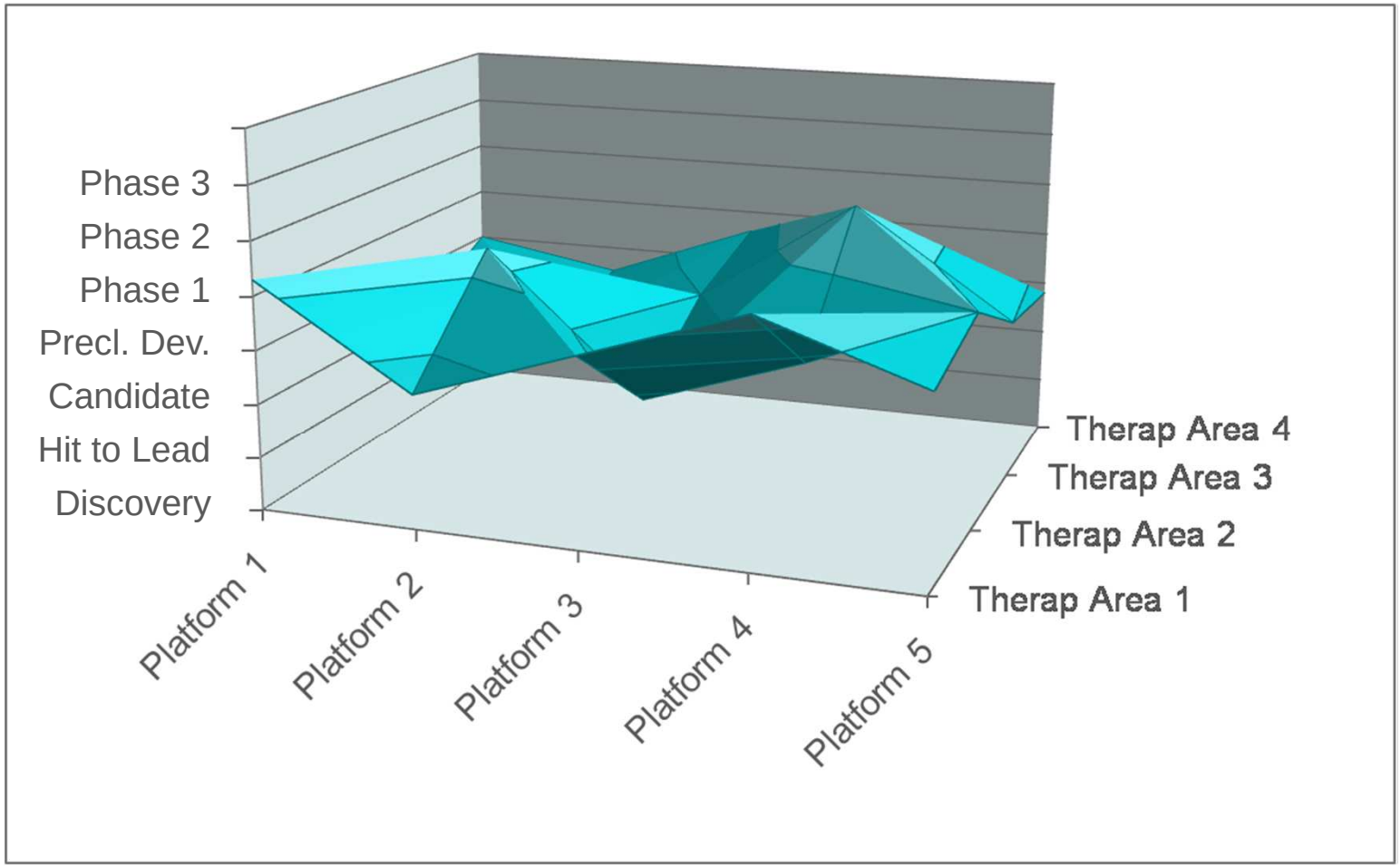
**…and opportunities**



agfernandez@ferrergrupo.com

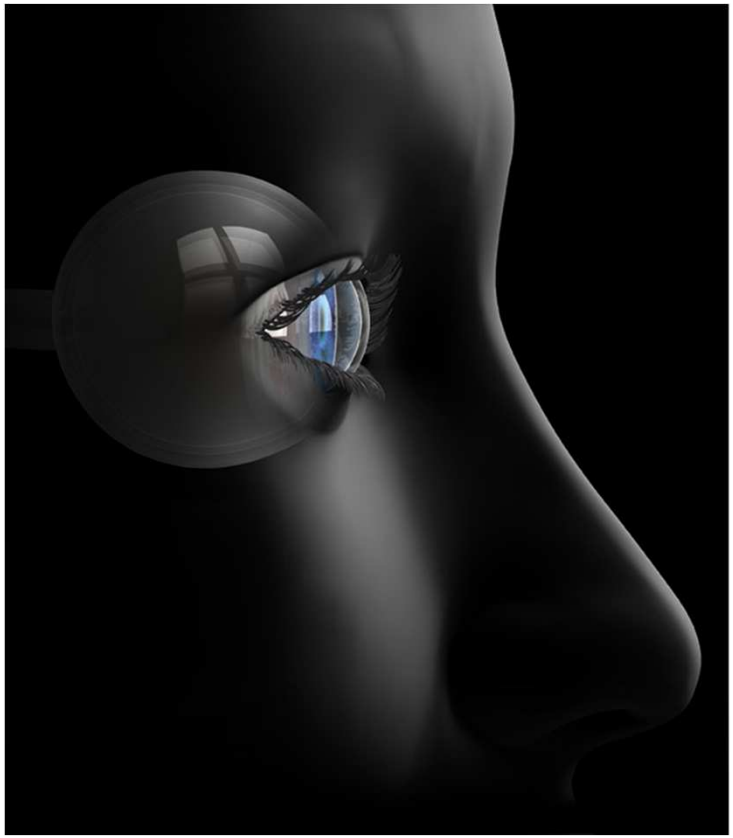
# What do we look for

## Pipeline: an idealized 3D representation






agfernandez@ferrergrupo.com

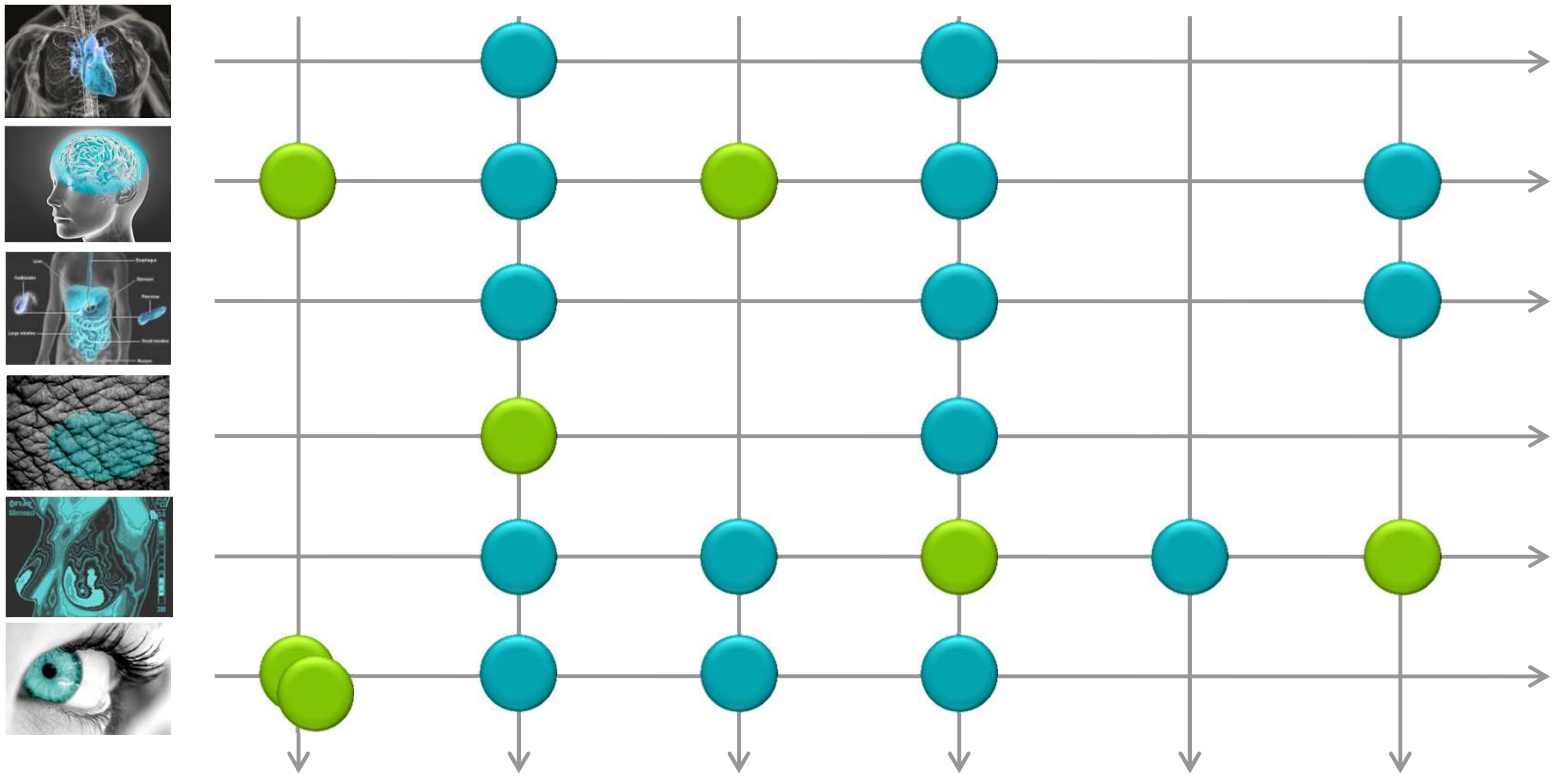


# Our Projects



agfernandez@ferrergrupo.com

# Our matrix of interests




**…and opportunities**



agfernandez@ferrergrupo.com

# Ongoing FERRER **collaborative projects**

| Project Code & Partners | | 1st Indication | 2nd Indication | Advanced therapy | Small molec. | Dx |
|---|---|---|---|---|---|---|
| FIB-111 | CRG Centre for Genomic Regulation | Retinitis Pigmentosa | AMD | ● | | |
| FIB-112 | ioba, ibec Institute for bioengineering of Catalonia, ciber-bbn | Corneal damage | | ● | | |
| FIB-114 | vivia BIOTECH | NHL | CLL | | ● | |
| FIB-115 | INSTITUT D'INVESTIGACIÓ BIOMÈDICA DE BELLVITGE | CUP diagnostic | | | | ● |
| FIB-116 | UPC, FECYT | Psoriasis | Atopic D. | | ● | |
| FIB-117 | histocell | Spinal Cord Injury | TBI | ● | | |
| TTC-ELA | Universidad Zaragoza, JANUS DEVELOPMENTS, bioingenium | ALS | | ● | | |



agfernandez@ferrergrupo.com


Making
people
better