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inventions | investments

Let your invention grow!

Jaromir Zahradka, Ph.D.

TRANSFERADE 2018

1st November 2018

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IOCB Tech

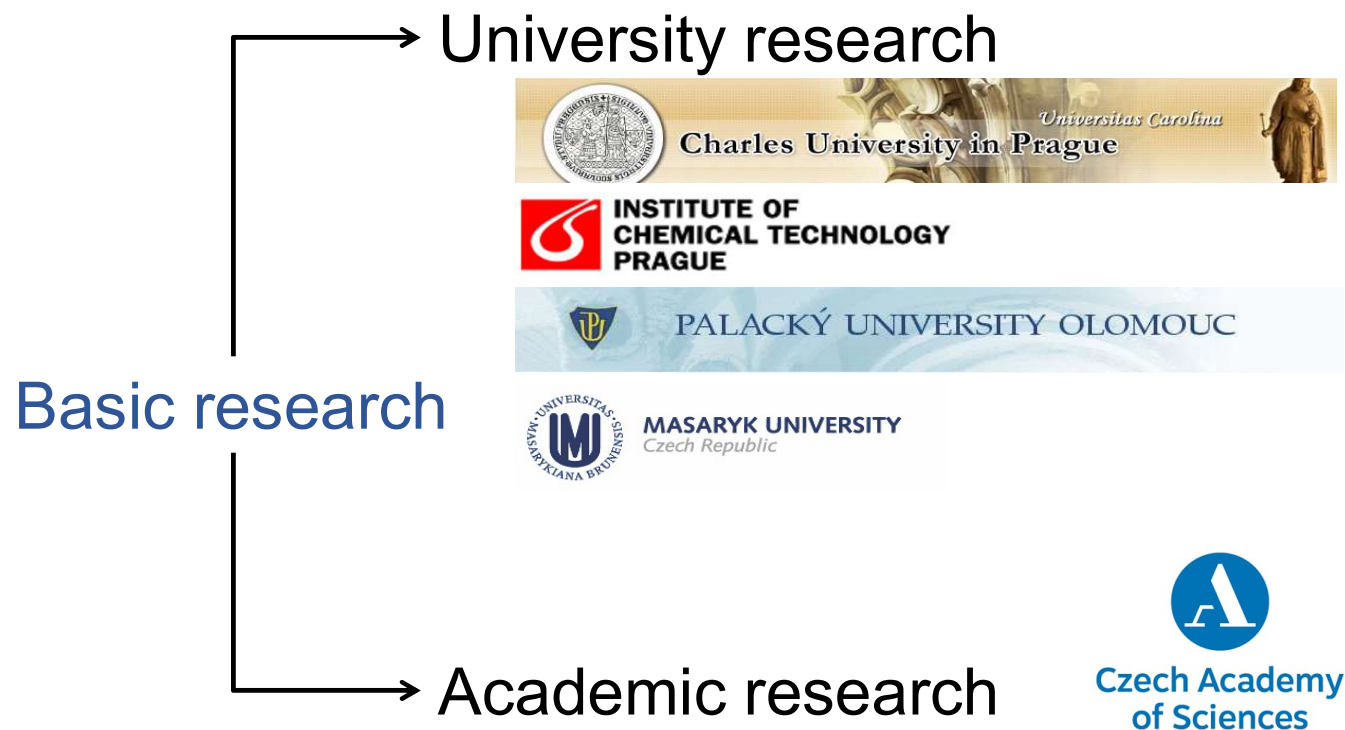
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I. Mathematics, Physics and Earth Sciences

II. Life and Chemical Sciences

4. Section of Chemical Sciences

Institute of Analytical Chemistry

Institute of Chemical Process Fundamentals

Institute of Inorganic Chemistry

Institute of Macromolecular Chemistry

Institute of Organic Chemistry and Biochemistry

J. Heyrovsky Institute of Physical Chemistry

III. Humanities and Social Sciences

Institute of Organic Chemistry and Biochemistry



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- Located in Flemingovo nam. + Papirenska
- App 600 employees (200 scientists + students + admin)
- **Mission – basic research in Organic Chemistry, Biochemistry, Theoretical Chemistry and related areas with strong emphasis to use the results of the research to improve human life.**



- Located in Flemingovo nam. + Papirenska
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The aim of the Institute is to reach excellence in international competition and to keep this position in the long term.



- Research in main areas :
 - Biochemistry and Molecular Biology
 - Computational Chemistry
 - Chemistry of Natural Products
 - Bioorganic & Medicinal Chemistry
 - Organic Synthesis
 - Spectroscopy and Physical Organic Chemistry



- Outcomes (2016):
 - 422 publications
 - circa 3000 unique molecules per year
 - 14 patents awarded
- Sobotnik, J. et al. **Explosive backpacks in old termite workers.** *Science*. **337**, 6093 (2012)
- Mason, P et al. Coulomb Explosion during the Early Stages of the Reaction of Alkali Metals with Water. **Nature Chemistry**, 7 (2015) 250. Riedl, J. et al.
- Schimer, J. et al. (2015) Triggering HIV polyprotein processing by light using rapid photodegradation of a tight-binding protease inhibitor. **Nature Commun.** 6, 6461
- M. Šámal et al. An Ultimate Stereocontrol in Asymmetric Synthesis of Optically Pure Fully Aromatic Helicenes (Úplné sterické řízení při asymetrické syntéze opticky čistých plně aromatických helicenů), **J. Am. Chem. Soc.** 137, 8469–8474 (2015)

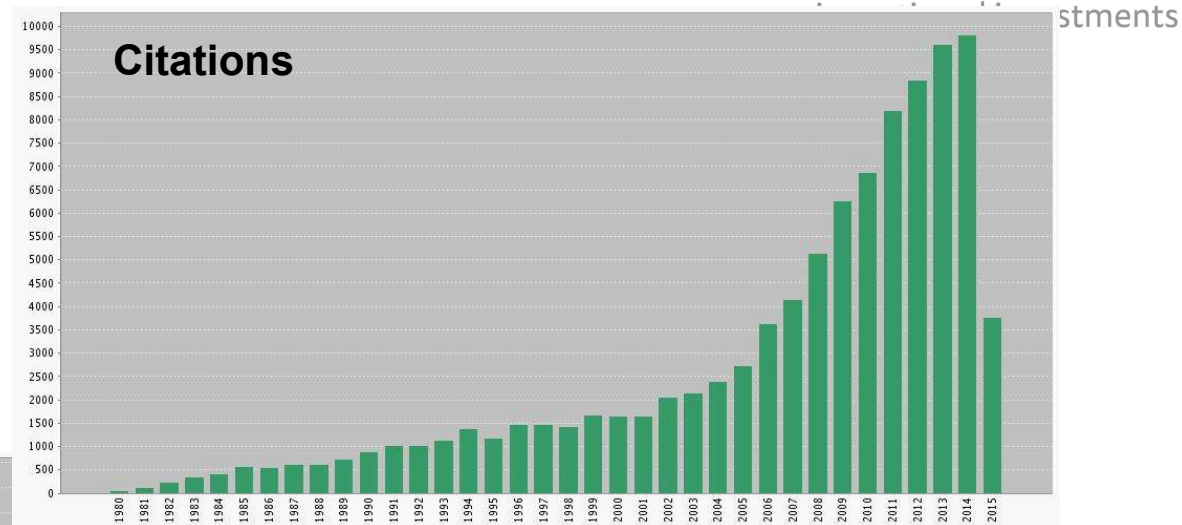
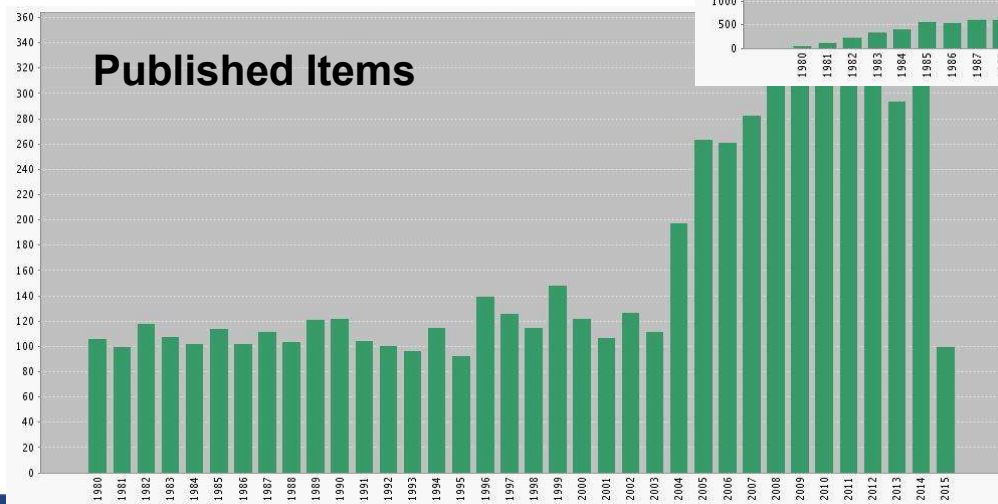
Citations



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Periodic evaluation

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since 2003

Helping people live better lives

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– Tradition and expertise in drug development together with pharma industry

Antivirals

- Duvira (Spofa)
- Vistide®, Hepsera®, tenofovir combinations: Viread®, Truvada®, Atripla®, Complera®, Stribild®, Genvoya®, Odefsey®, Vemlidy® (Gilead)

Hormone Analogues

- Oxytocin, Desmopressin, Terlipressin/Glypressin (Ferring-Léčiva)
- Carbetocin/Duratocin (Nordic Group, Ferring)

Dermatologics

- Dermazulen (Zentiva)

Cancerostatics - hypomethylating agents

- 5-aza-2'-deoxycytidine-decitabine/Dacogen® (MGI Pharma)
- Azacitidine/Vidaza® (Pharmion Corp.)



Gilead Sci collaboration

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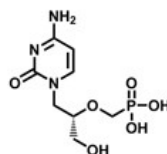


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- Outcomes:

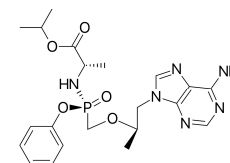
- *cidofovir*: **Vistide™**



opportunistic infections: herpes simplex, smallpox,... FDA 1996

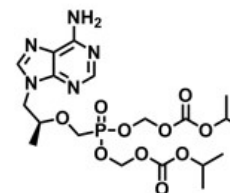
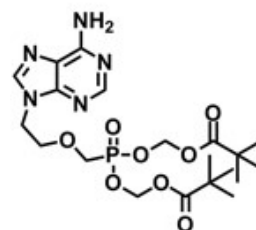
- *tenofovir*: **Viread, Truvada, Atripla, Complera Striblid, Genvoya, Odevsey,**

HIV - FDA 2001/2004/2006/.../2015/2016 ...



- *adefovir*: **Hepsera™**

viral B hepatitis - FDA 2002



Technology transfer - History



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Tenofovir: Anit - HIV success story

- 1968 The first paper about phosphonates published
- 1976 The first meeting with prof. Erick De Clercq, the first antiviral activity published
- 1985 The key-patent applications on ANP's
- 1986 were filed
- 1987 The patent rights were licensed to **Bristol-Meyers**
- 1989 Bristol-Meyers merged with Squibb; **the development of ANP's was interrupted**, the license rights returned
- 1990 The license rights were transferred to **Gilead Sciences**
HPMPC, PMEA and **PMPA** were selected as drug candidates for development
- 1996 The first drug, **Vistide™ (Cidifovir, (S)-HPMPC)**, approved in USA and EU for treatment of HCMV retinitis, clinically used for larynx, and anogenital papiloma, HSV-2, activity against monkeypox and other poxviruses, etc.



Technology transfer - History



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- | | |
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Technology transfer - History



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Anti-HIV Therapy: Progress Over a Decade

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Gilead Sci. collaboration

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• Outcomes:

• Patient benefits:

- **Tenofovir™** - HIV market bockbuster (sales > 5 b USD)
- **Atripla™** - The first once-daily single tablet regime (STR) for HIV-1
- **Hepsera™** - Lower side effect,

• Gilead Sci growth: + 1000% (2000 – 2010)

• IOCB:

Up to 100 mil. USD/year



Let`s do it again!



IOCB Prague – The Technology Transfer story

Tenofovir
disoproxil 

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?

2007

2010

2015

2020

2025

2030

2035

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IOCB Prague – The Technology Transfer story

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Tenofovir
disoproxil



2009

2010

2015

2020

2025

2030

2035

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IOCB Prague – The Technology Transfer story

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Tenofovir
disoproxil



2009

2010

2015

2020

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IOCB Prague – The Technology Transfer story

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Tenofovir
disoproxil



Goals of the TTO:

- 1) Long term financial sustainability of IOCB
- 2) Help scientists to fulfill their dreams
- 3) Help to exploit the potential of the Czech research

2009

2010

2015

2020

2025

2030

2035

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IOCB Prague – The Technology Transfer story

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Tenofovir
disoproxil



6 people in the team
>25 projects
> 50 patents
> 14 licenses



2015 - 2018

2010

2015

2020

2025

2030

2035

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IOCB Prague – The Technology Transfer story

Tenofovir
disoproxil 

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?

2015

2010

2015

2020

2025

2030

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IOCB Prague – Novel licence Tenofovir

Tenofovir
disoproxil



TAF



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GILEAD

2015

2010

2015

2020

2025

2030

2035

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IOCB Prague – Novel licence Tenofovir

Tenofovir
disoproxil



TAF



IOCB Tech

20 – 40 mil USD / year

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GILEAD

2015

2010

2015

2020

2025

2030

2035

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IOCB Royalties – plans for future

Tenofovir
disoproxil



TAF



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?

2010

2015

2020

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2030

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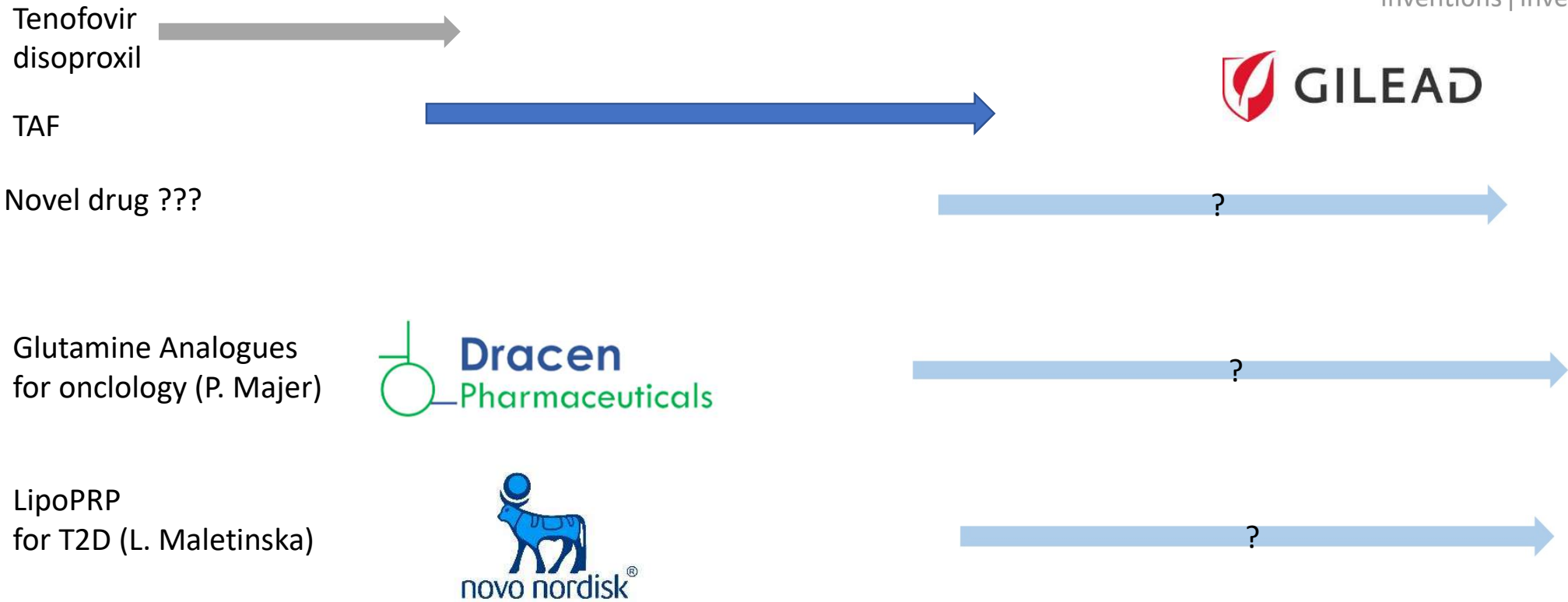
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IOCB Royalties – plans for future

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2010

2015

2020

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IOCB Royalties – plans for future

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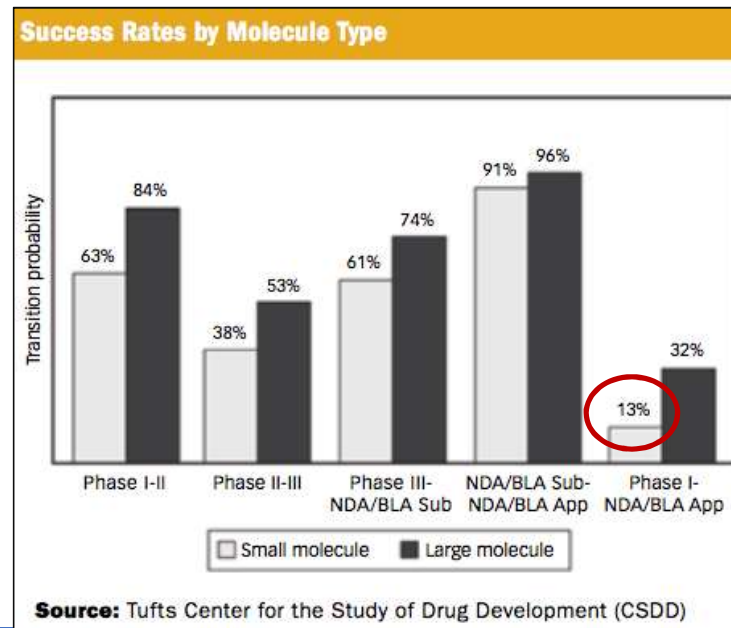
Tenofovir disoproxil

TAF

Novel drug ???

Glutamine Analogues for oncology (P. Majer)

LipoPRP for T2D (L. Maletinska)



2010

2015

2020

2025

2030

2035

Organization structure



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Exclusive TT services



100 %
Ownership

IOCB Tech



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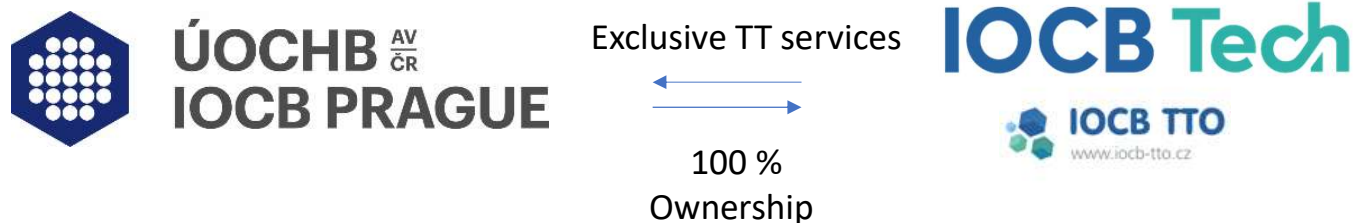
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IOCB Projects Capacity:

10-15 projects

1-2 novel per year

Organization structure



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IOCB Projects Capacity:

10-15 projects

1-2 novel per year

Critical mass needed!

Organization structure



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Exclusive TT services



100 %
Ownership

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Profit
Dividends



100 % Ownership
Funding

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Organization structure

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Exclusive TT services



100 %
Ownership

IOCB Tech

Profit
Dividends



100 % Ownership
Funding

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Accessible Projects:

50 - 100 projects

10-20 novel per year

i&i Prague partners:



UNIVERZITA
KARLOVA
V PRAZE

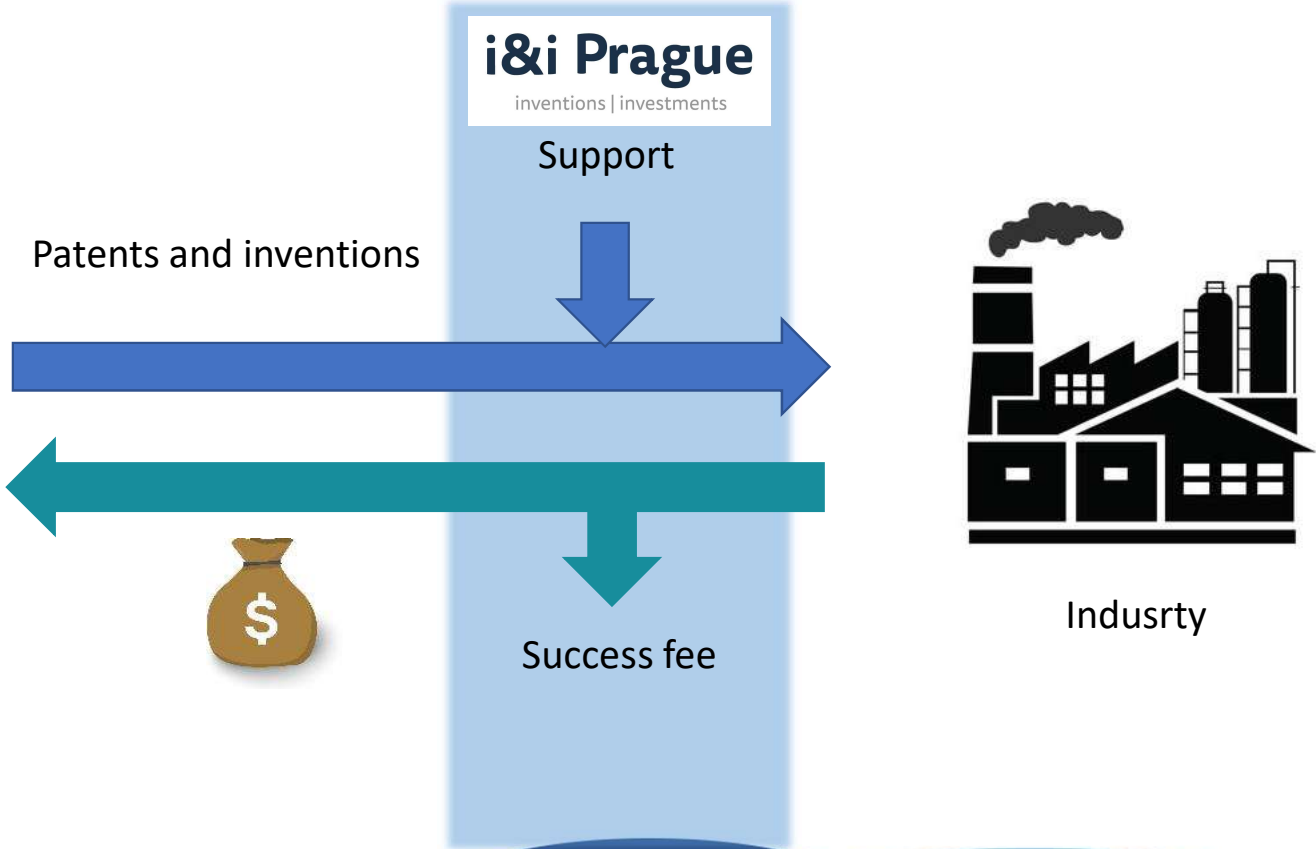



Akademie věd
České republiky
Czech Academy
of Sciences



Univerzita
Pardubice

i&i Prague workflow



Indusrty

Who are we?

IOCB Tech

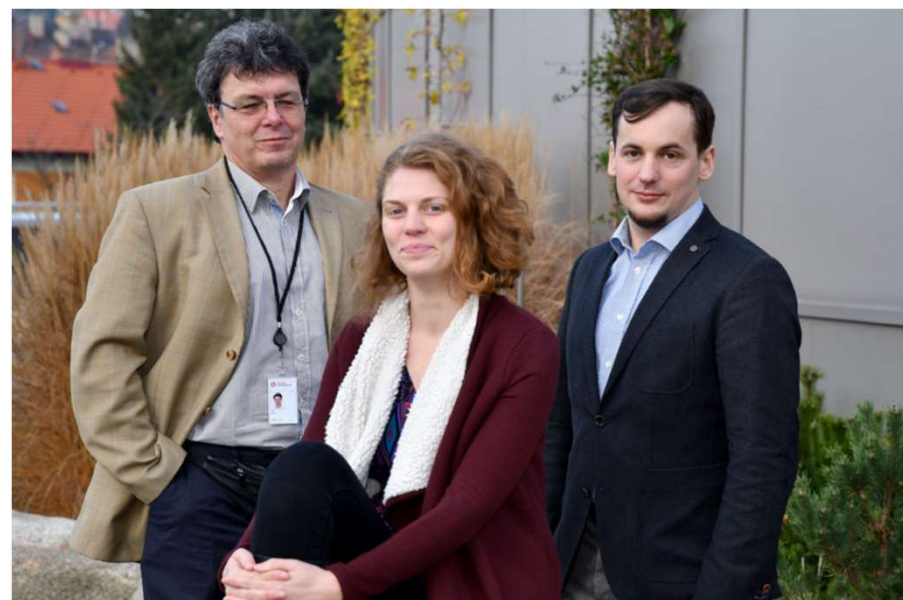


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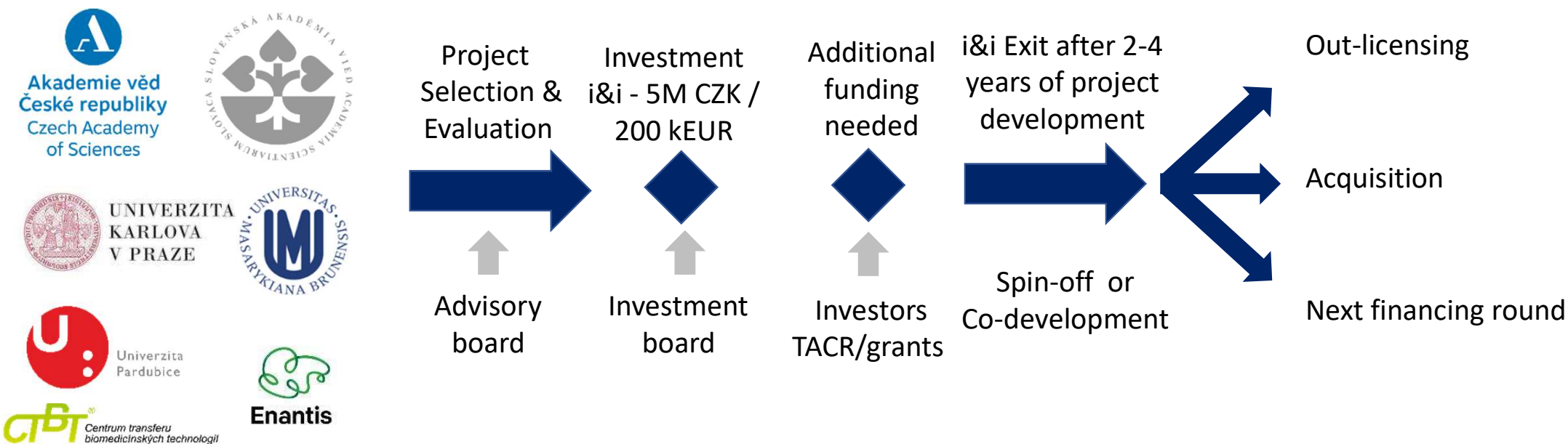
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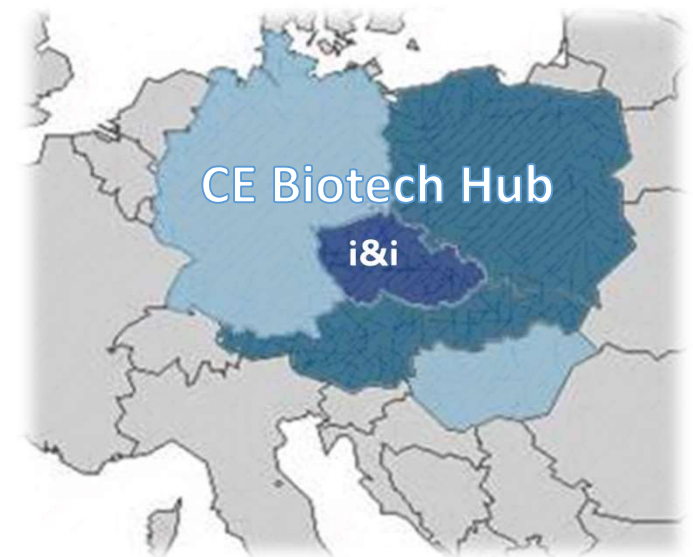
i&i Prague workflow

- Business workflow:



Business model and strategy

- Projects scope:
 - i&i Prague is focused on inventions, intellectual property and R&D projects in **Life Science** area mostly within the CE region.
 - **Drug discovery**
 - **Diagnostics & Molecular Diagnostics**
 - **Medical devices, E-Health**
 - **Research tools**



i&i Prague: One year update

(Since May 2017)

- Disclosures **28**
- Complete Due Diligence started **17**
- Projects to be started soon **4**
- Projects under incubation **4**
- Projects completed (outlicensed) **1**

Evaluation

28

Due diligence

17

Negotiations

4

Portfolio Projects

4



Dracen Pharmaceuticals

- Dracen Pharmaceuticals:

- US based company developing Co-owned IP (IOCB, Majer + JHU, Slusher)
- Prodrugs for Glutamine Analogues – oncology (DON project successor)
- i&i Prague co-invested 200 k USD



IP licensing



Dracen Pharmaceuticals

- Dracen Pharmaceuticals:

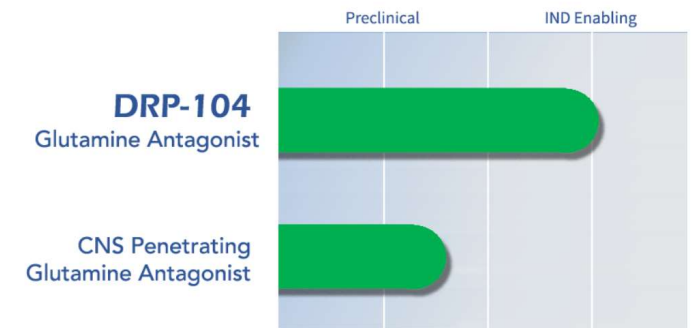
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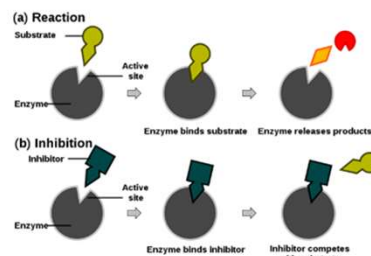


Dracen Pharmaceuticals

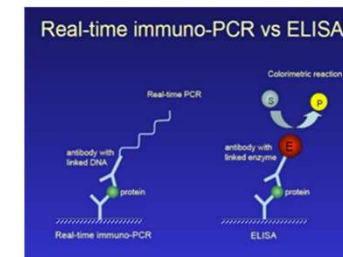
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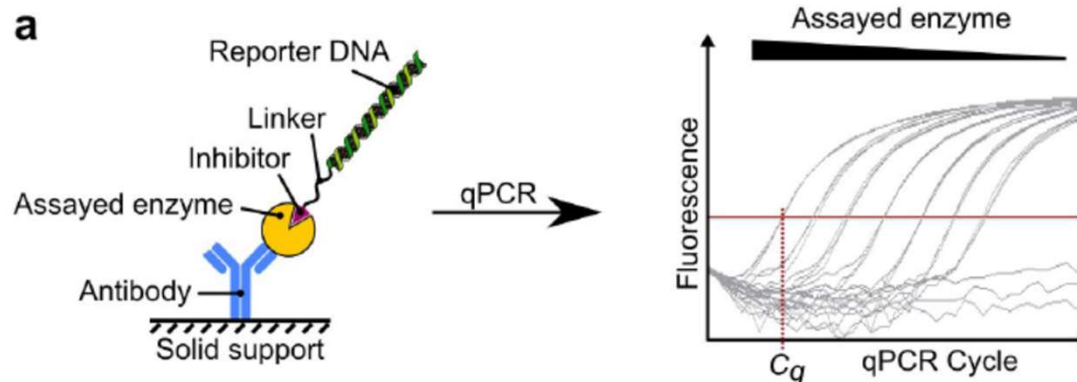




DIANA

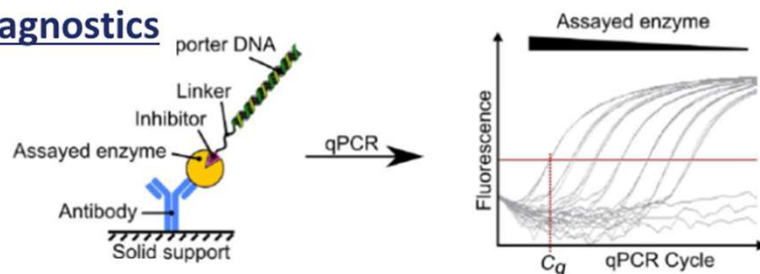


DNA-linked Inhibitor ANTibody Assay

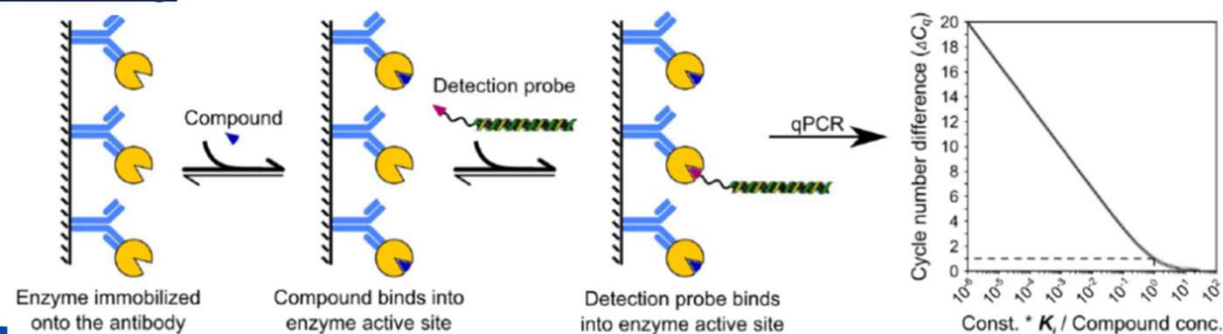


DNA-linked Inhibitor ANTibody Assay

Diagnostics



Screening



Diana Biotechnologies



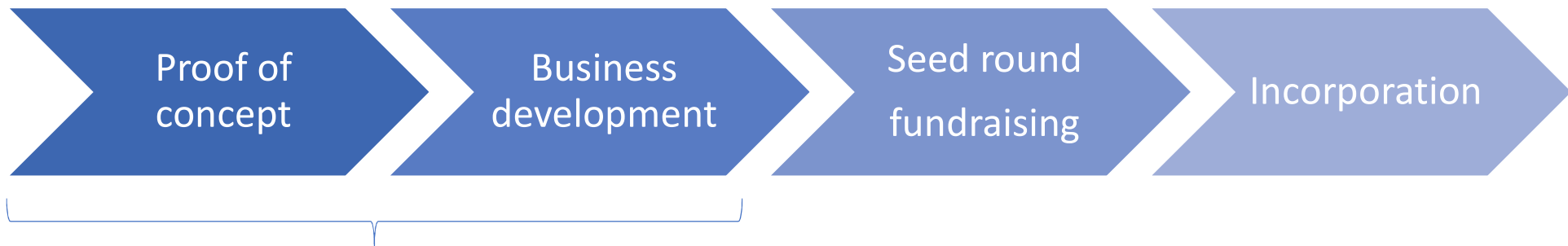
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IOCB Tech

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bpd partners



IOCB Tech / i&i Prague incubation program

Company started in July 2018 raising 2,7 m EUR

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Case studies



Thank you for your attention !

Contacts :

Jaromir Zahradka, PhD

Tel: +420 601 367 577

Email: zahradka@iniprague.com

www.iniprague.com