

Anforderungen der Life-Science Industrie an die Hochschulen

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There's nothing more extraordinary than a normal life



Agenda

- What really matters
- University ranking – how it matters
- What industry is looking for

Powerful demographic trends are changing healthcare and raising the bar for innovation



Aging



**Rise of
chronic
diseases**

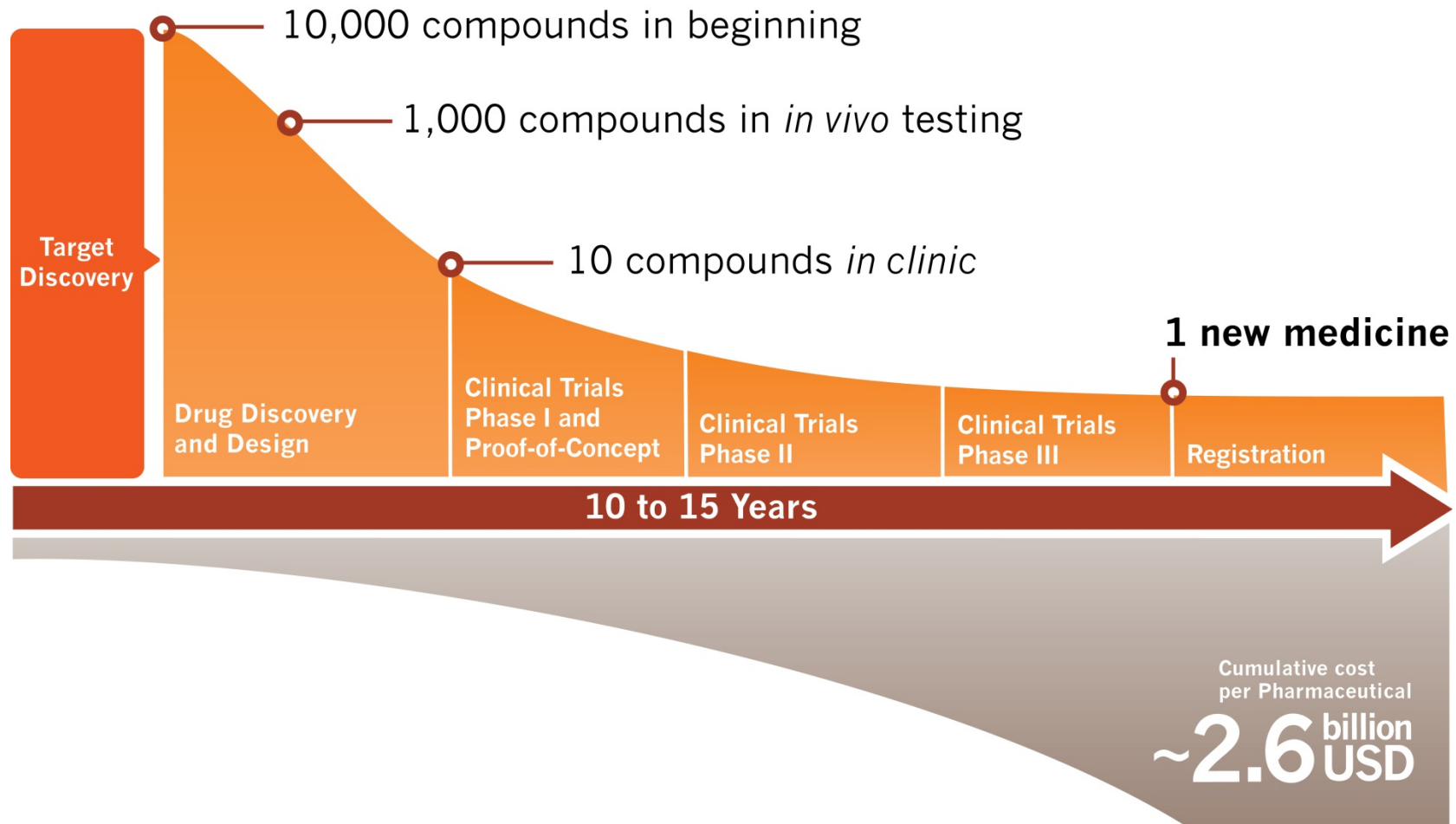


**Growing
population**

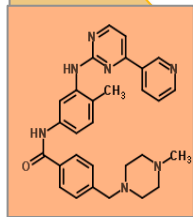
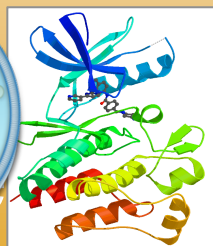
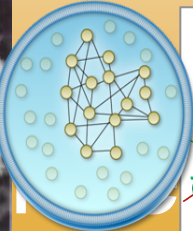
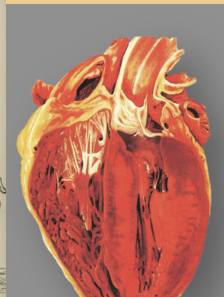
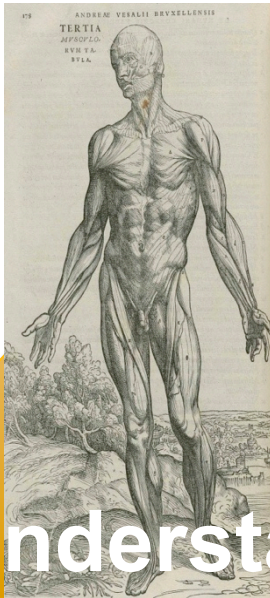


**Increasing
demand for
healthcare**

Drug development is a lengthy, costly and risky undertaking



Helping patients by science-based innovation



Understanding disease mechanisms

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Good scientists go where good scientists are

Scientists \longleftrightarrow **Univ. Ranking**

Individuals

Σ

Personal relationships

Hiring

Collaborations

Technologies

Education

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 - **Industry – university collaborations**

Framework Agreements

Scripps – Sandoz/Novartis collaboration 1997-2007



Aim: Science providing insights for the discovery of drugs

■ Results

- No commercial products
- Thousands of manuscripts reviewed
- >60 priority patent applications filed

■ Challenges

- Mission
- Scope/focus
- Incentives
- Administration

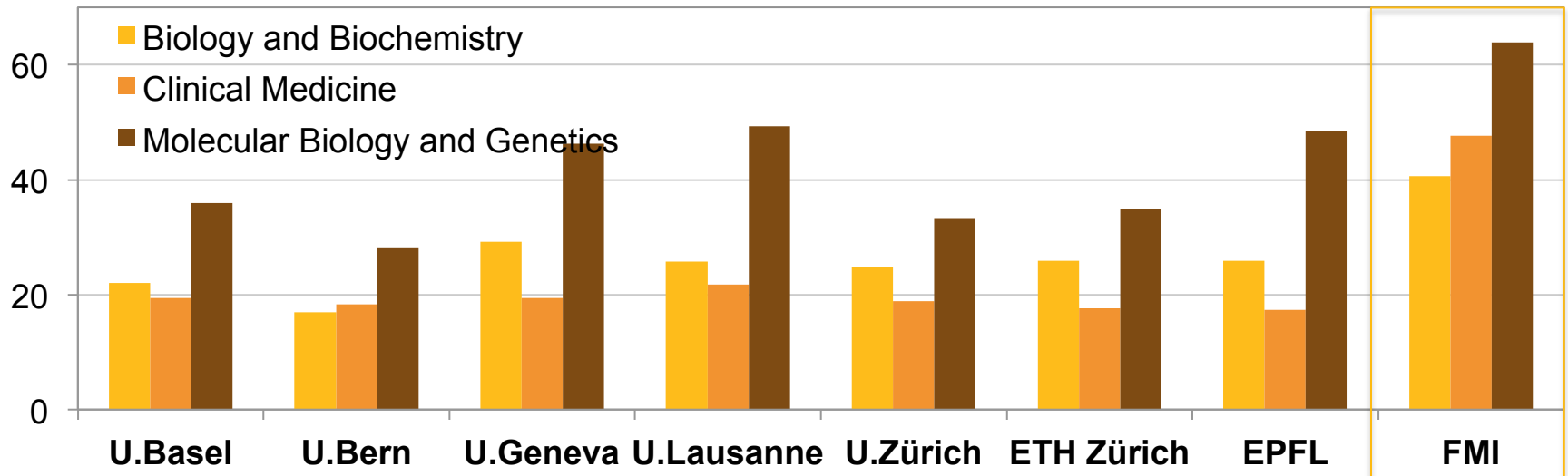
The Academic Institute Model

Novartis and the Friedrich Miescher Institute (since 1970)

- Fundamental biomedical research through academic and applied research
- Home to >300 scientists (100 PhD Students, 100 Postdocs, 23 group leaders)
- Employing 42 nationalities and has 75 Swiss employees
- Publishing >100 peer reviewed articles per year (~20% Nature, Science, Cell)

Citations per paper (January 2005 – April 2015)

from ISI Web of Knowledge (http://apps.webofknowledge.com/WOS_GeneralSearch)



Innovative Medicines Initiative (IMI)

Public Private Partnership

A joint undertaking between the European Union and the European Federation of Pharmaceutical Industry and Associations (EFPIA).

- Collaborative research driven by EFPIA companies
- Competitive calls for proposals to select public partners
- Open collaboration in public-private consortia (data sharing, wide dissemination of results)
- Both founding members, EFPIA and EU share financing:
 - EFPIA partners' in-kind contribution is matched 1:1 by EU with cash to public partners



What makes collaborations successful?

■ Science driven

- Novel scientific insights
- Therapeutic hypothesis

■ Personal relationships

- Trust, passion
- Committed project champions

■ Lowering bureaucracy

- Fair and reasonably quick agreements



stake/risk

mission/goal

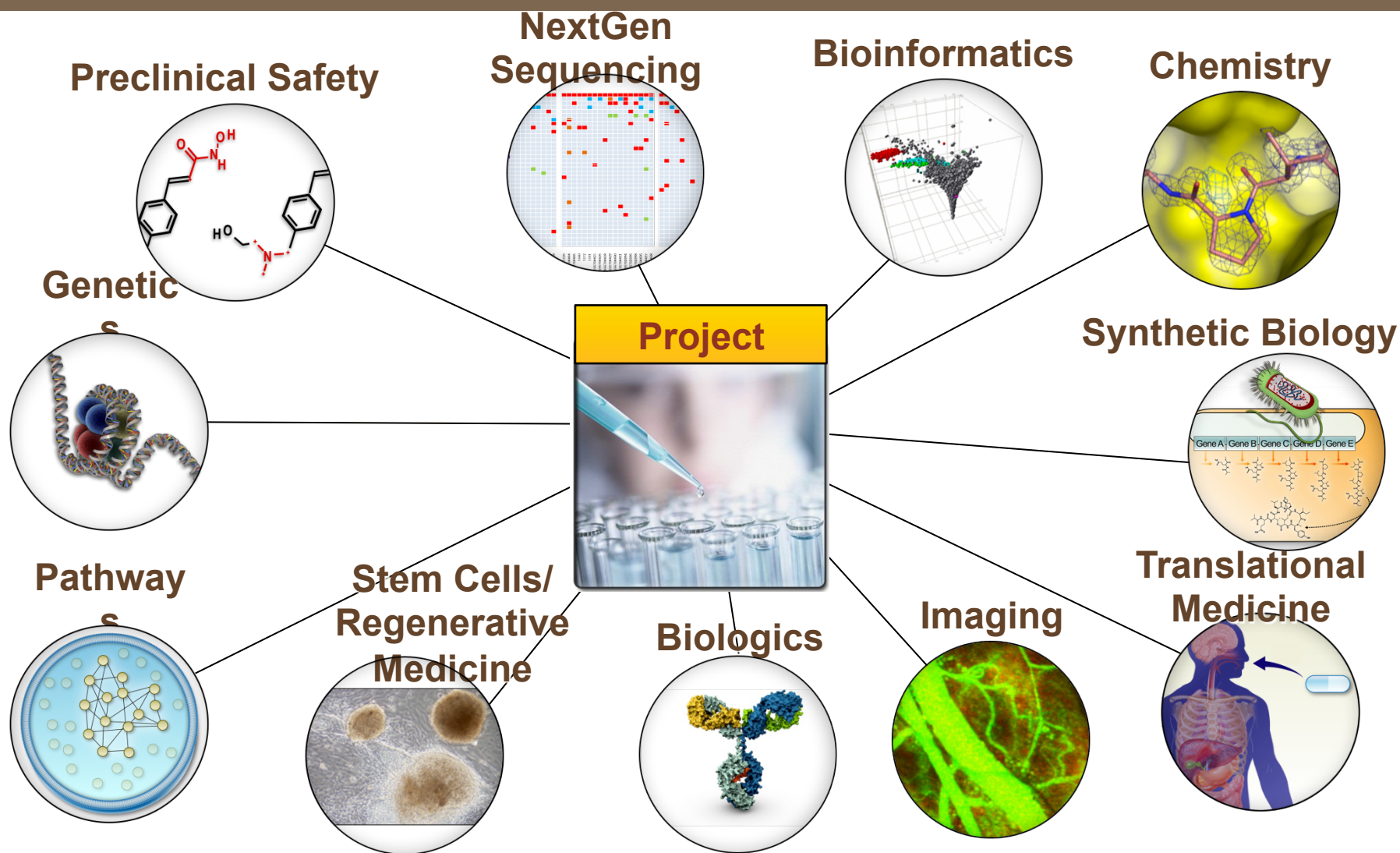
trust/openess

credit/reward

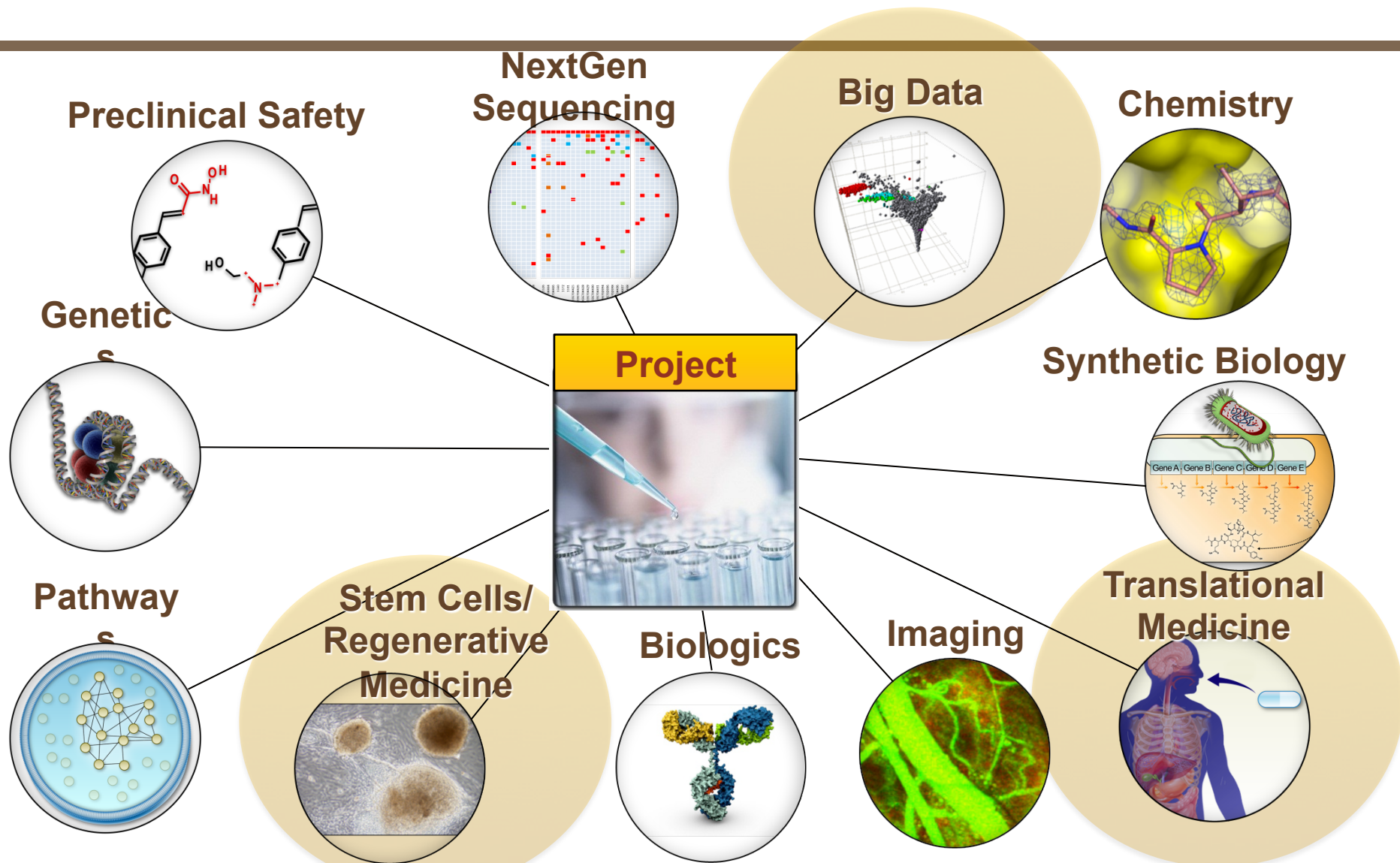
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 - **Research and Education**

Each project draws from core competencies



Cross-disciplinary science & technology

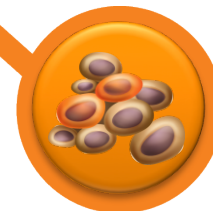


Evolution of drug modalities

Cell & Gene Therapies

Cell & Gene Transfer

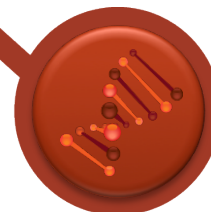
- **Cell therapy:** transfer cells with relevant function into patient
- **Gene therapy:** transfer of genetic material and the uptake of the gene into the appropriate cells of the body



Biologics

Protein engineering

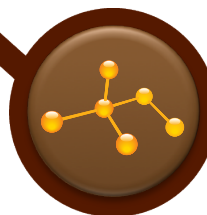
Develop optimized recombinant proteins



Small Molecules

Chemical engineering

Synthesize small molecules with specific targets

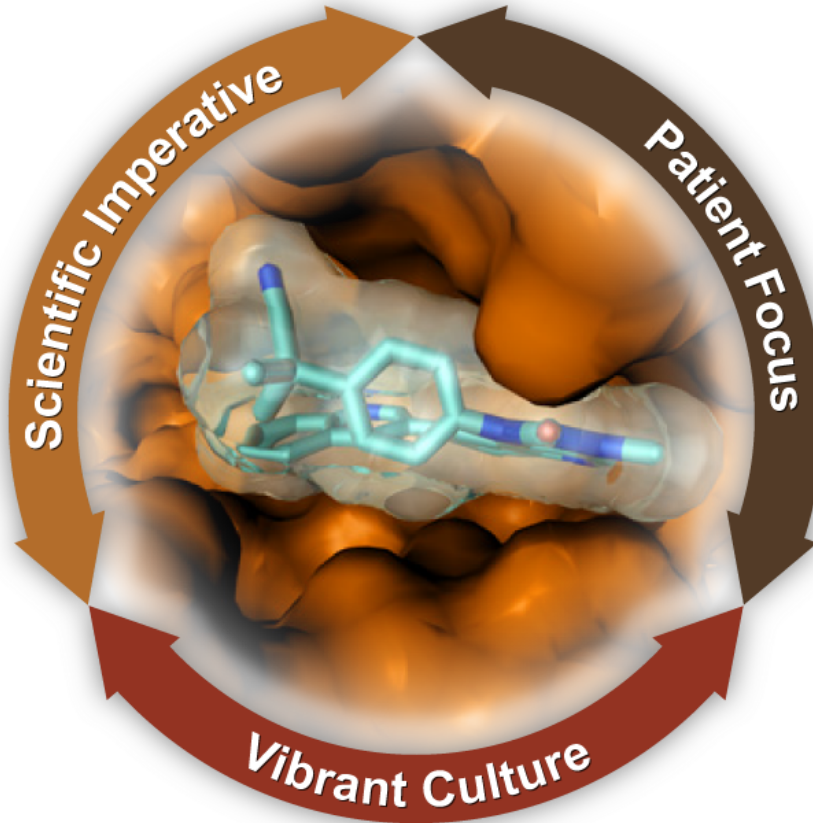


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 - Hiring

Fit of industry needs with motivation and skills of the individual scientist

Scientific
excellence



Develop
treatments for
patients

Collaboration in
multi-disciplinary teams

Trends for hiring

NIBR experience over last 5-10 years

■ **Complexity**

- high scientific quality, PhDs require a good postdoc fellowship
- Effective collaboration in teams

■ **Modern scientific changes**

- Scientific informatics such as genomics/biomarkers
- Clinical understanding at pre-clinical research

■ **Industry experience** isn't a pre-requisite, but

- Evidence of excellence (e.g. extra curricular)
- Working under time pressure, with competing demands

Our advice to young scientist considering a career in industry



What drives you?

Develop self-awareness and impact on others

Be curious

Expose to different cultures and ways of working

Keep growing and learning

Develop professional skills in addition to research skills

Be courageous and take risks

**Leave your comfort zone!
Face new challenges and learn from it**

Three wishes

Summary

- Science driven academic-industrial collaborations
 - Enable projects no one party could do (combine complementary skills)
 - Deliver results with biomedical / translational impact
- University research with breakthrough potential
 - Fundamentally new insights (high risk / high gain projects)
 - Develop pioneer technologies
- Educate world-class scientists with a passion to help patients
 - Excellence in their own discipline(s)
 - Team players in global, interdisciplinary projects