Univer-City of Zurich: An “evolutionary-medical” perspective

Frank Rühli

Disclaimer
This presentation represent my personal view only and not the official view by the UZH. For internal use only.

P. Cézanne, Young Man with a Skull, 1896-98
Aim

The aim of this presentation is to highlight the unique history alongside the current and future challenges of the UZH, with a particular focus on the medical disciplines and especially the Institute of Evolutionary Medicine.
Zurich as an academic / medical hub

- the capital of Switzerland, in terms of economic power and population size
- education and health care as #2 and #3 economically important branches of industry (after finance)
- hosts the Swiss Institute of Technology (ETHZ), the University Hospital Zurich (the largest Swiss hospital, oldest records dating back to 1204) and the largest Swiss University, the University of Zurich (UZH)
- “typical local cultural principles”: Protestantism (historically), modest, neutral, sustainable, innovative
Brief history of the UZH

- founded in 1833 (building upon institutions dating back to 1525)
- full university (seven faculties, ca. 25k students)
- the very first European university created through a democratic process, not by the church or heads of states, subsequently under constant public control (budget, legal frameworks)
- 12 Nobel Prize winners
- member of “League of European Research Universities”
Medicine at UZH

- Medical Faculty was one of the original four founding faculties
- UZH largest Swiss Medical Faculty (ca. 3k students)
- medicine counts for roughly a third of the UZH budget (ca. 300 Mio USD).
- human / veterinary medicine, dentistry, chiropractic medicine, MD-PhD program, Life Science Zurich Graduate School
- University Research Priority programs, Clinical Research Priority Programs
- ranks #5 within continental Europe, #33 worldwide
  (Academic Ranking of World Universities 2016)
What is Evolutionary Medicine?

• Evolutionary medicine or Darwinian medicine investigates human disease vulnerability and disease aetiologies (genetics, behaviour, environment, pathogens, etc.) from an evolutionary perspective.

• It also addresses future developments in human health as a result of present-day medical and socio-economic practices.

• Biomedical scientific concept since the 1990s

• “Medicine without evolution is like engineering without physics” (R. Nesse, ASU)
Medical technology
(health policies, pharmaceutics etc.)

Human morphology and genome

Environment (climate, population density etc.)
Pathogens (viruses, bacteria etc.)

time

Rühli et al. 2015
The Institute of Evolutionary Medicine (IEM) - vision

„Learning from the past for the present and the future.“

We are a leading international and globally connected research, teaching and service institute which is part of the medical faculty at the University of Zurich. We analyse ancient biological material and associated data to better understand modern human health issues and diseases. Due to specialist scientific expertise, excellent infrastructure and state-of-the-art methodologies, we are able to work on various interdisciplinary research questions in the context of the field of Evolutionary Medicine.
The IEM - summary

- unique Evolutionary Medicine institute worldwide (2014ff.)
- a top down supported field at UZH: part of a University Research Priority Program
- interdisciplinary, e.g. bridges Medical and Science Faculty
- four groups (ancient biomolecular, evolutionary morphology and adaptation, paleopathology and mummy studies, museum of medicine and medical history collection), ca. 50 members
- roughly two third of the institutes budget from third-party funding
The Medical Museum (*planned*) and the Medical History Collection
Impact of Evolutionary Medicine

- excellent example of interdisciplinary research and teaching
- increasingly incorporated into the curricula of Anglo-Saxon universities
- encourages critical thinking, especially for medical students
- crucial for shaping effective future health policy strategies
The future of UZH Medicine

An ongoing process of multiple governance / research initiatives, with some having already been launched:

- **Hochschulmedizin Zurich:**
  - to promote interdisciplinary research and education at the interface of basic research and clinical medicine

- **Dachstrategie Universitäre Medizin Zürich:**
  - adjusted governance, more clusters and space-wise connected research to be planned
  - Vision 2026: e.g. promotion of innovative clinical research in collaboration with the University Hospital Zurich to boost innovation in translational medicine, Zurich as a major health care provider with new supply concepts / information technology, innovative medical curricula
**Univer-City: Hochschulmasterplan Zürich**

Another major challenge is the future expansion of the UZH within central Zurich, highlighting the problematic interdependence of urban planning and academic needs.
General challenges

- increase in number of students / curricula
- budget and space restrictions
- global competition vs. local constraints (speed of decisions / political requirements)
- unique selling point of Universities fades away (newly established “Universities of Applied Sciences”)

Number of UZH students
red: foreigners, grey: women, blue: total
Similarities: IEM - UZH Medicine - *Univer-City* Zurich

- issue on how to promote emerging interdisciplinary research and teaching fields
- challenge of new unit(s) to be established within existing structures
- lack of space as a major limitation
- major part of the budget via third-party funding
- top-down decisions vs. academic freedom
- uniqueness / innovation as a strength
- public as a major driver
Take home message

The *Univer-City* of Zurich serves as an excellent example of a tradition steeped academic hub - particularly in the medical field - facing key opportunities and challenges, both in a local setting and in a globalised market.

Funding: Mäxi Foundation; University of Zurich

www.iem.uzh.ch
Facebook, Twitter
frank.ruehli@iem.uzh.ch

*C'est l'équilibre de l'évidence et du lyrisme qui peut seul nous permettre d'accéder en même temps à l'émotion et à la clarté.* (A. Camus, 1942)