

The UiO:Life Science initiative: why is it important for Oslo University Hospital?





Future development OUS

- Improved therapy and research
- In modern buildings
- To a growing population

2016:

- **1290 MAN YEARS IN RESEARCH (INCL. RESEARCH SUPPORT) - APPROXIMATELY 50% EXTERNALLY FUNDED**
- **APPROXIMATELY 1900 ARTICLES**

Strengthen research

- Good and excellent research

Close research collaboration between OUH and UiO within Life Science

- Centers/research milieus
- Infrastructure
 - Core facilities
 - Biobanks and registries
- Technology and competence
 - Data, bioinformatics, computational analysis
- Studies of disease mechanisms
- Innovation and commercialization

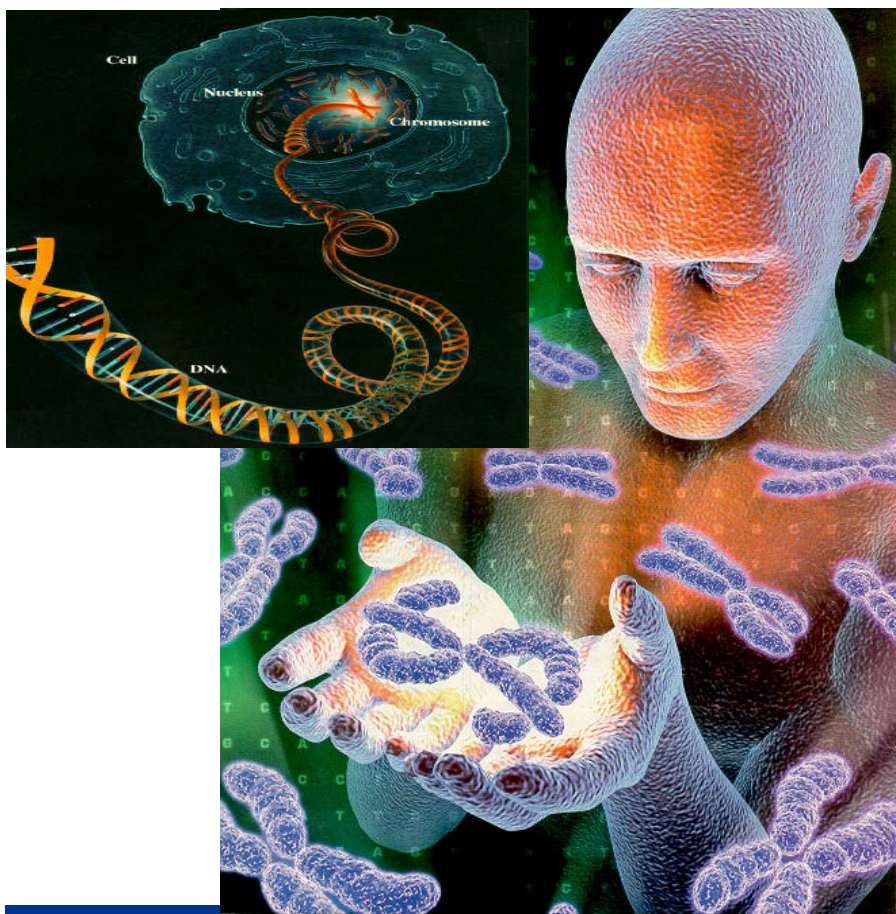
From brilliant individuals
to brilliant systems

- Large centers
- Large infrastructure
- Clusters
- Partnership

Health research - trends

Increased biological insight
Development of new diagnostic tools and novel therapy

Technological development
Equipment and data analysis (big data, automation)



HOW AN ON-BOARD IMAGER WORKS

X-Ray Tube	Robotic Arms	Linear Accelerator	Flat-Panel Image Detector	Display Monitor/Control Console

Varian's On-Board Imager device for the linear accelerator uses robotic arms that rotate around the patient. The tube generates low-dose X-rays needed for high-quality images. Varian software compares real-time images from the On-Board Imager to reference images to produce radiographic (still) images in multiple views.

Robotic Revolution - Device works wonder in prostate cancer surgery, New York Daily News [read more](#)



Biobanks and registries

Increased (secure) use and reuse

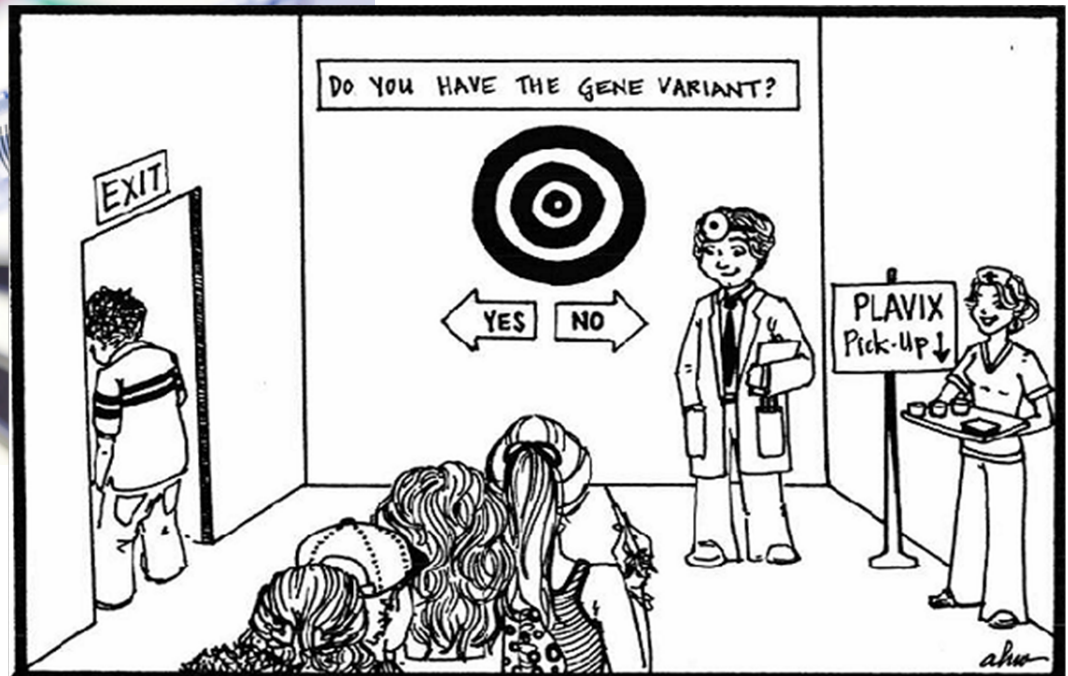


Today's medical practice

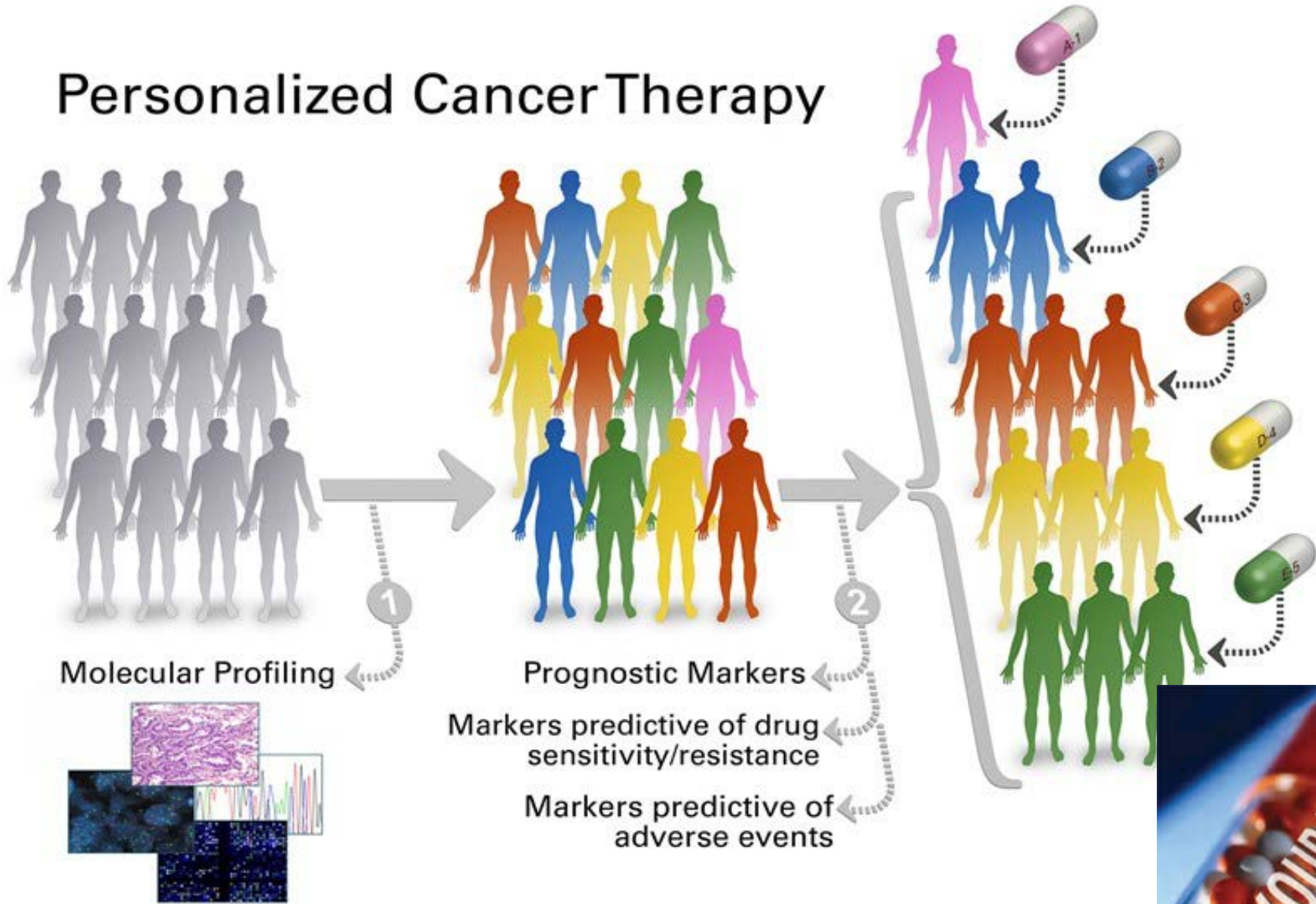
- Unspecific diagnosis and ineffective treatment for many diseases
- Adverse effects common



Personalized medicine (Precision medicine)



Personalized Cancer Therapy



ICT project grants from the Norwegian Research Council



BigMed



In silico Pathology - Improving diagnosis by utilizing Big Data and software-driven automation of pathology

Håvard Danielsen



ICT platform that addresses the analytic bottlenecks for the implementation of precision medicine, and paves the way for novel big data analytics.

Erik Fosse

Increased need for novel competence in the health sector

- Education of health personell
- Novel positions (bioinformatics, biostatistics, ICT, computational science, physics)
 - Research and innovation
 - Diagnostic and clinical departments
 - Personalized medicine, technological development, complex data- and image analyses

Health research - trends

Increased biological insight
Development of new diagnostic tools and novel therapy

Technological development
Disruptive technologies, automation and big data



**BIOTECH
PHARMA**



MEDTECH

Robotic Revolution - Device works wonder in prostate cancer surgery,
New York Daily News [read more](#)

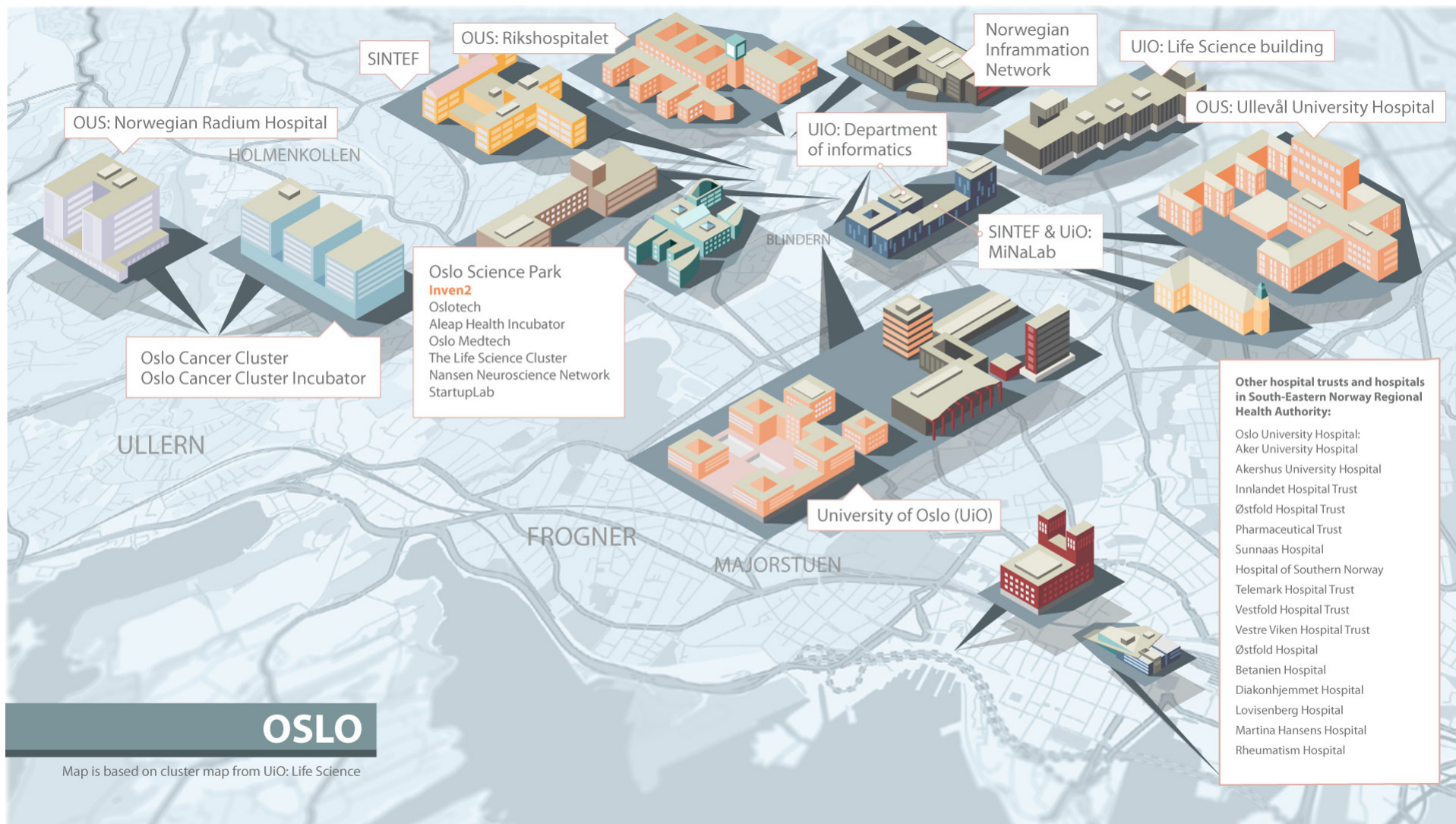
Innovation and industrial collaboration



- OUS/UiO shared TTO: **Inven2**
- 2016: 84 patents, 46 licence agreements and 7 new companies
- 140 new clinical studies (2016)

“Successful medical schools will be surrounded by clusters of small/medium-size biotech/biomed companies”

Hans Wigzell

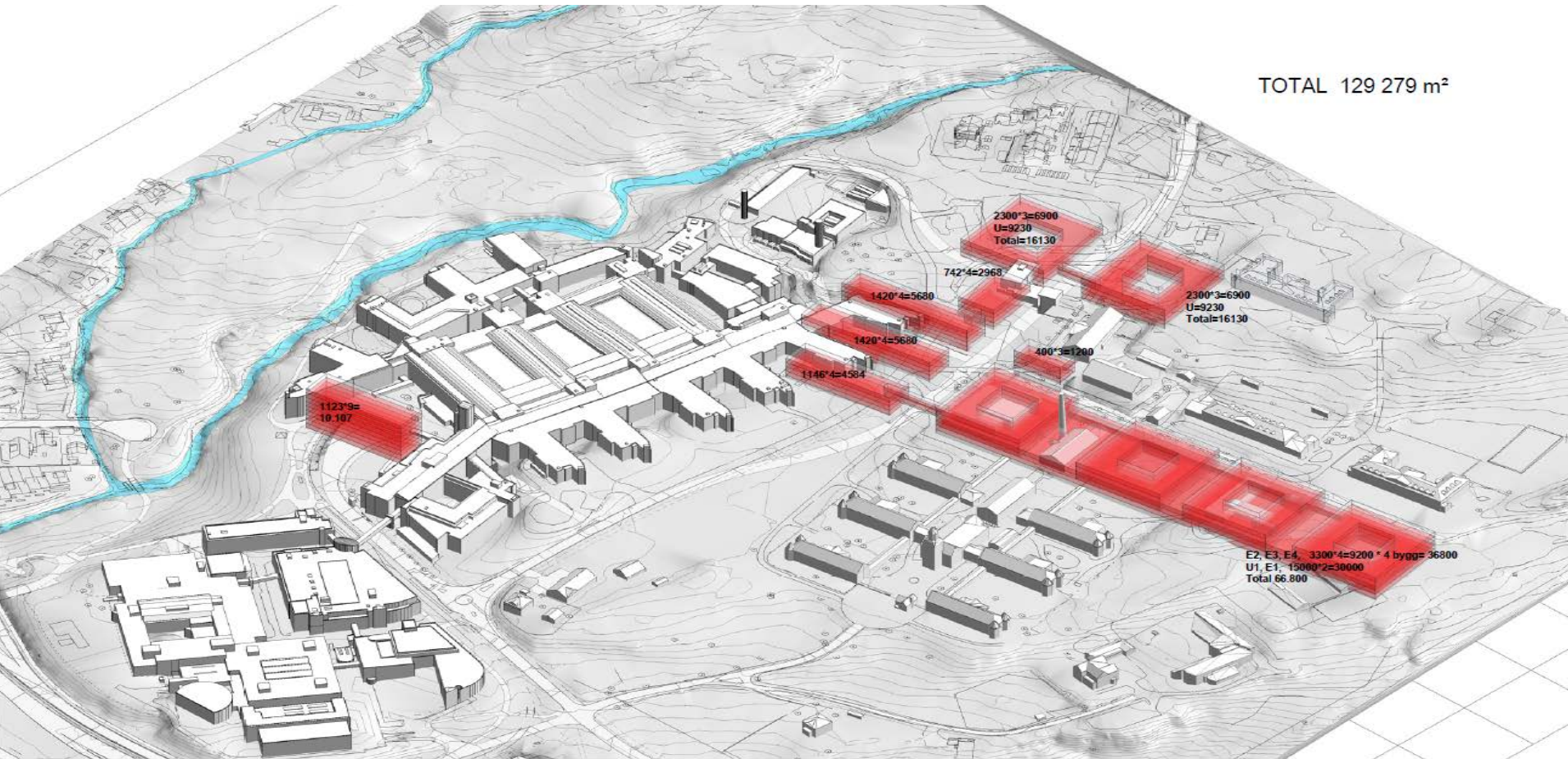


Gaustad-Rikshospitalet



Rikshospitalet

Alternative development Rikshospitalet



Correlation between high research quality and hospital performance

US News World report
Best hospitals & Best graduate schools report 2010-11

US News Best Hospital across specialities

1. Johns Hopkins Hospital
2. Mayo Clinic, Rochester
3. Massachusetts General Hospital
4. Cleveland Clinic
5. Ronald Reagan UCLA Medical Center
6. New York-Presbyterian
7. UC San Francisco Medical Center
8. Barnes-Jewish Hospital/Wash. Uni.
9. University of Pennsylvania Hospital
10. Duke University Medical Center
11. Brigham and Women's Hospital
12. University of Washington Medical Center
13. University of Pittsburgh Medical Center
14. University of Michigan Hospitals

US News Best medical school ranking¹

1. Harvard University
2. University of Pennsylvania
3. Johns Hopkins University
4. UC San Francisco
5. Washington University
6. Duke University
7. University of Michigan
8. University of Washington, Seattle
9. Yale University
10. Columbia university
11. Stanford University
12. UC Los Angeles
13. University of Chicago
14. University of Pittsburgh

Oslo Life Science



Stronger together (from Odd Stokke Gabrielsen)