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Professor Dr. Med. Fred Walberg and the History of Norwegian Brain Research

Presentation by Rector Ole Petter Ottersen
22.04.2011

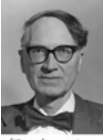


Fred Walberg




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Some biographical data



Fred Walberg

- Born 24 October 1921
- Cand. Odont. 1948
- Dr. med 1956
- Head, Anatomical Institute 1966 – 1990
- Honorary Doctor, Karolinska Institute 1966
- † 18 January 2005






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**The historical context:
Organization and infrastructure**

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The University of Oslo: 1811 - 2011

- 1811: University founded by King Frederik 6
- 1814: The Norwegian constitution
- 1815: Anatomical Institute is established as the first institute of the University – with Michael Skjelderup as its first professor
- 1852: University buildings at Karl Johan's street completed – Domus Media to become the home of the Anatomical Institute (until 1990)

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Fred would have enjoyed himself had he been present on the University Square in February 2011




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.....and if he had seen the newly renovated Aula




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Anatomical Institute: New premises 1990




- Move coincides with Fred's retiring as head of institute
- But Fred moves along and continues his work!
- New building (to be completed 2012) is Fred's legacy




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The historical context: The Oslo School of Neuroscience

Neuroscience in Norway started with Fridtjof Nansen (Nobel laureate 1922)




Fridtjof Nansen (born 1861)



Travelling to Camillo Golgi in Pavia, Fridtjof Nansen was one of the first to pick up what was later named "the Golgi technique"

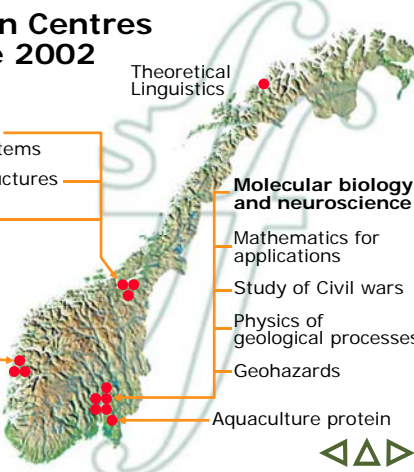
The genealogy of Norwegian Neuroscience

Oslo-skolen



Reidun Torp
Mahmood Amiry-Moghaddam

13 Norwegian Centres of Excellence 2002

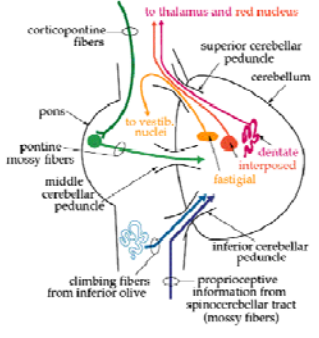


- Quality of Service in Communication Systems
- Ships and ocean structures
- Biology of memory**
 - Moser & Moser
- Climate Research
- Centre and periphery in medieval Europe
- Integrated petroleum research
- Theoretical Linguistics
- Molecular biology and neuroscience**
- Mathematics for applications
- Study of Civil wars
- Physics of geological processes
- Geohazards
- Aquaculture protein

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Fred Walberg, the scientist

- Unravelling the wiring of the brain stem
- Rapid adoption of new techniques (electron microscopy, tracing methods)
- Generously hosting scientists from abroad



Dr. Roongtam Ladpli was first neuroscientist from Thailand to visit Norway




BRODAL AND WALBERG, world famous neuroscientists

NORAD RESEARCH FELLOWS AT THE ANATOMICAL INSTITUTE

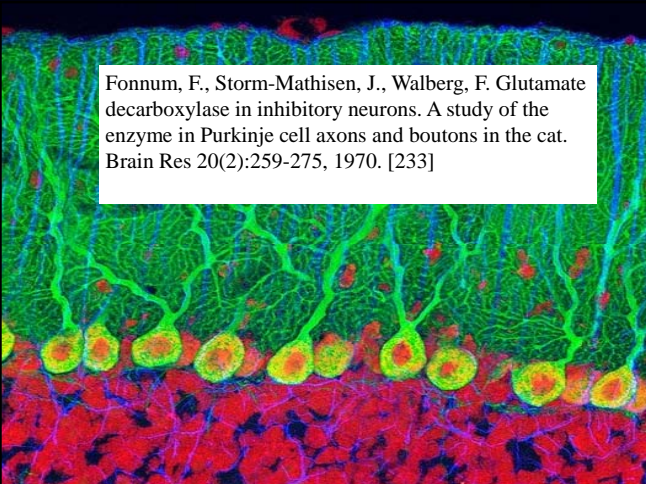
Roongtam Ladpli
 Naiphinich and Nittaya Kotchabhakdi
 Amara Siddhichai
 Reon Somana
 Wanna Chindadoungratn
 Chittin Chindadoungratn
 Wipawan Thangnipon
 Piyarat Govitrapong

Exp Brain Res. 1978 Apr 14;31(4):591-604.
Cerebellar afferent projections from the vestibular nuclei in the cat: an experimental study with the method of retrograde axonal transport of horseradish peroxidase.
[Kotchabhakdi N, Walberg F.](#)

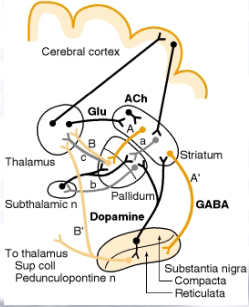
Fred Walberg received many honors for his work (here in the Aula with Theodor Blackstad, 1966)

Fred Walberg was not only a hodologist (tracing fibre connections), but also helped usher in the field of neurochemistry



Fonnum, F., Storm-Mathisen, J., Walberg, F. Glutamate decarboxylase in inhibitory neurons. A study of the enzyme in Purkinje cell axons and boutons in the cat. Brain Res 20(2):259-275, 1970. [233]

Fonnum, F., Grofova, I., Rinvik, E., Storm-Mathisen, J., Walberg, F. Origin and distribution of glutamate decarboxylase in substantia nigra of the cat. Brain Res 71(1):77-92, 1974. [365]



Ji, Z., Aas, J-E., Laake, J., Walberg, F., Ottersen, OP. An electron microscopic, immunogold analysis of glutamate and glutamine in terminals of rat spinocerebellar fibers. *J Comp Neurol* 307:296-310, 1991. [81]

The diagram on the left illustrates the pathway of corticospinal fibers from the cerebral cortex through the brainstem (midbrain, pons, medulla) to the spinal cord. Labels include: corticospinal fibers, pyramidal tract, anterior horn, lateral corticospinal tract, descending corticospinal tract, and descending corticospinal tract (axons). The electron micrographs on the right show cross-sections of spinocerebellar fibers (Pf) with immunogold particles (s) indicating the presence of glutamate and glutamine in the terminals. A mitochondrion (M) is also visible in one of the micrographs.

**Fred Walberg,
the teacher**

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Fred Walberg

"Keep in mind why we are here"

"That's another faculty"

The top photograph shows a lecture hall with a large group of students seated at desks, facing a lecturer at a table. The bottom photograph shows a laboratory setting with several people working at tables.

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**Fred Walberg,
the Head and Father of
Anatomical Institute**


*"We are just like a
big family."*



**Academic Freedom in
practice**

His introduction of the term
"Molecular Anatomy"
allowed talents to grow

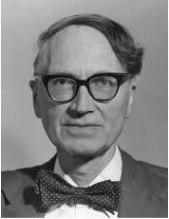
Bjørn Reino Olsen, now at Harvard



**Fred Walberg,
the Family Man and
Social Force**

The ruler of the lunch table

*Behind a somewhat
stern exterior lay a
man full of humour,
empathy and joie de
vivre*



Fred Walberg

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When Fred passed away on 18 January 2005

- he had all reasons to be happy with his accomplishments
- while we lost an excellent tutor, a good teacher, a warm friend, a generous host and a devoted family father

UiO University of Oslo We, your extended family, salute you

