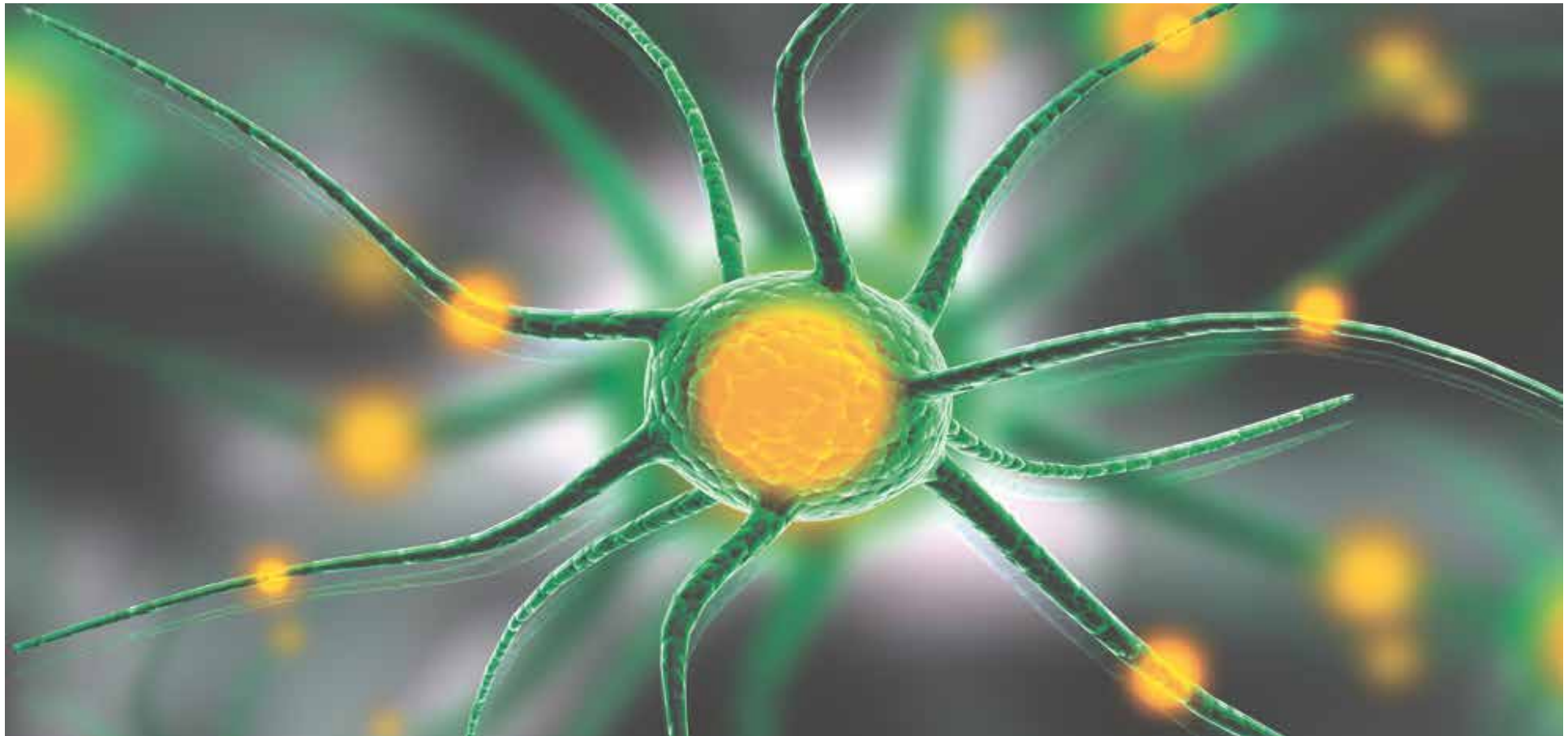


Perspectives of High Power Computing in Neurosciences

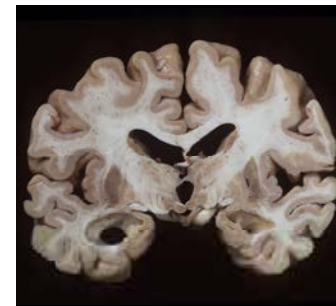
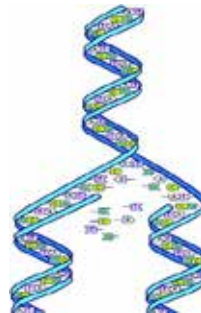
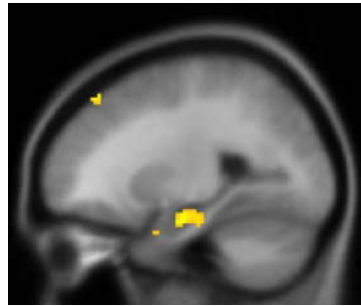


sc | nat 

Swiss Academy of Sciences
Akademie der Naturwissenschaften
Accademia di scienze naturali
Académie des sciences naturelles

SAMS  Swiss Academy
of Medical Sciences

Perspectives of High Power Computing in Neurosciences



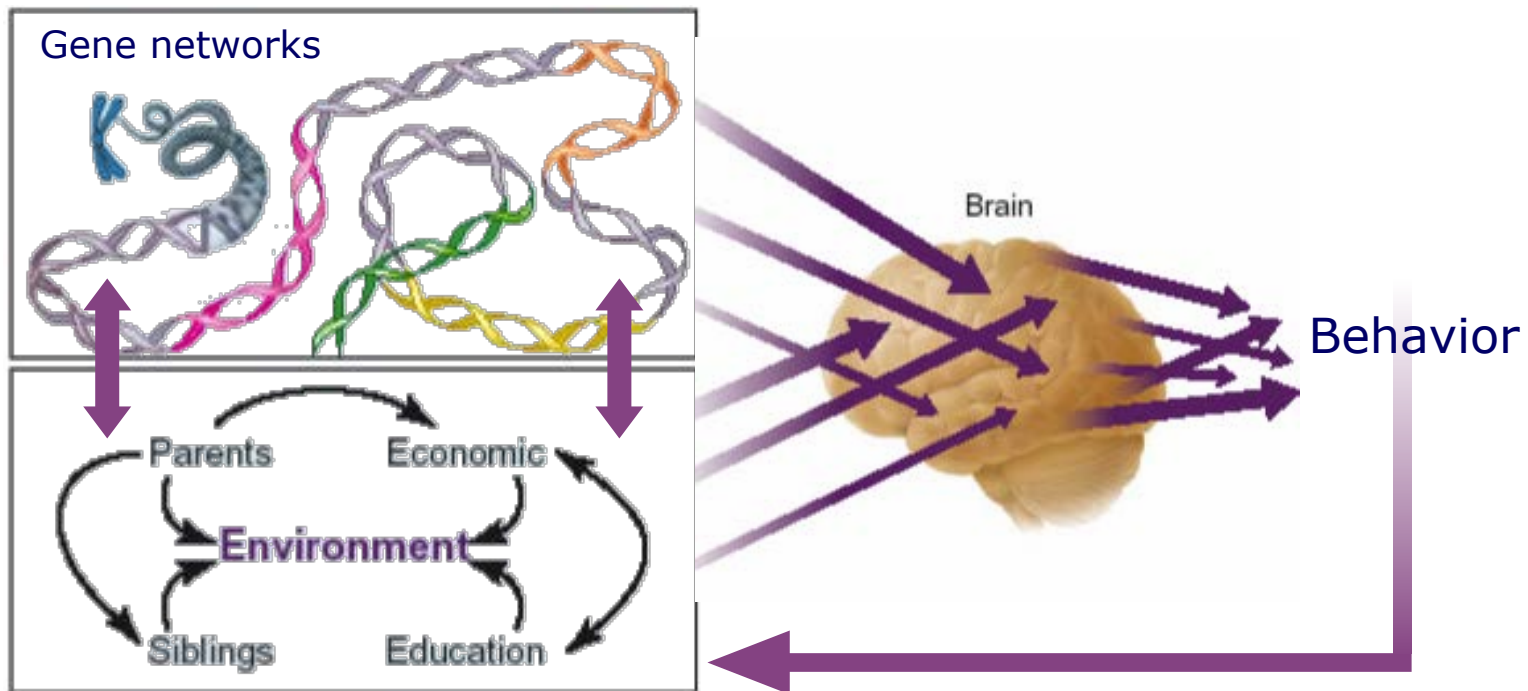
Prof. Andreas Papassotiropoulos, M.D.
Division of Molecular Neuroscience
Faculty of Psychology and University Psychiatric Clinics
Life Sciences Training Facility, Biozentrum
University of Basel

Conference series «The Big Six – Spotlight on the EU-Flagship-Initiative», Bern, January 20 2012

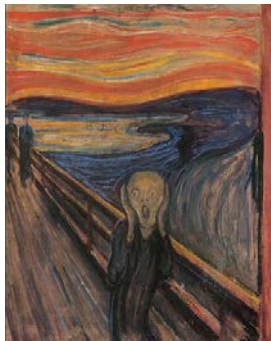


Complex etiology

> Gene-Environment feedback loop



Define the task



Quote

You can know the name of a bird in all the languages of the world, but when you're finished, you'll know absolutely nothing whatever about the bird... So let's look at the bird and see what it's doing -- that's what counts. I learned very early the difference between knowing the name of something and knowing something.



Richard Feynman

Experts



The Nobel Prize in Physiology or Medicine 2000

"for their discoveries concerning signal transduction in the nervous system"



Arvid Carlsson

🕒 1/3 of the prize

Sweden



Paul Greengard

🕒 1/3 of the prize

USA



Eric R. Kandel

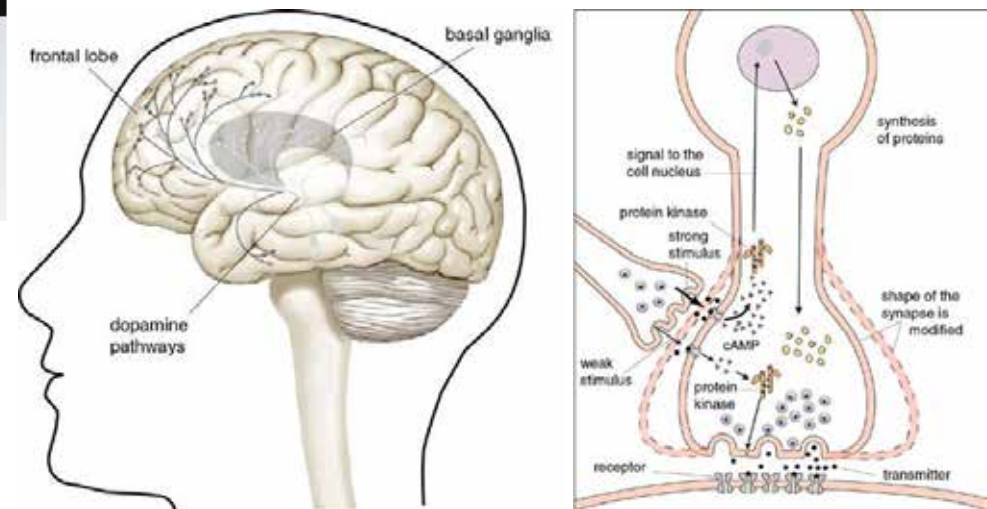
🕒 1/3 of the prize

USA

Carlsson: Dopamine - Parkinson-
L-DOPA

Greengard: Protein phosphorylation

Kandel: Molecular mechanisms of
memory



Experts' opinion



Commentator: *„giant leap...journey far more exciting and far more important than any trip to the stars...the journey to understand ourselves“*

Question: *„Will conscious knowledge ever be capable of understanding consciousness itself?“*

Carlsson: No! Greengard: Yes! Kandel: Probably!

Question: *„Will it ever be possible to understand the mechanisms of mind?“*

Quote

They are in you and me; they created us, body and mind; and their preservation is the ultimate rationale for our existence. They have come a long way, those replicators. Now they go by the name of genes, and we are their survival machines.



Richard Dawkins
The selfish gene

It's all about claims (*and the justification for these claims*)



June 26, 2000



The draft of the human genome will revolutionize the diagnosis, prevention and treatment of most, if not all, human diseases.

Genetic diagnosis of diseases will be accomplished in 10 years and treatments will start to roll out perhaps five years after that.

Over the longer term, perhaps in another 15 or 20 years, you will see a complete transformation in therapeutic medicine.

The only intellectually honest answer is that there's no way to know. One can prefer to be an optimist or a pessimist, but the best approach is to be an empiricist.