

INBB 2022

# PHYTOTHERAPY IN NEURODEGENERATIVE DISEASES

Silvia Bisti





BIO AURUM

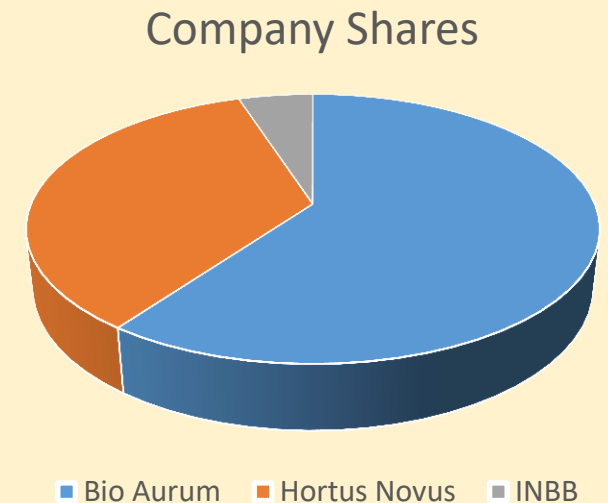
Improving health through nature

# Bio Aurum has two main objectives:

- 1) Treatment of CNS degenerative diseases
- 2) Development of low-cost diagnostic tool for CNS degenerations

## Bio Aurum is a partnership among:

- Cube Labs 60%
- Hortus Novus 35%
- Istituto Nazionale Biostrutture e Biosistemi 5%





*Hortus Novus* has a long experience (15 years) on:  
**Neuroprotective properties of saffron**



***Saffron has been known since ancient times as a Traditional remedy.***

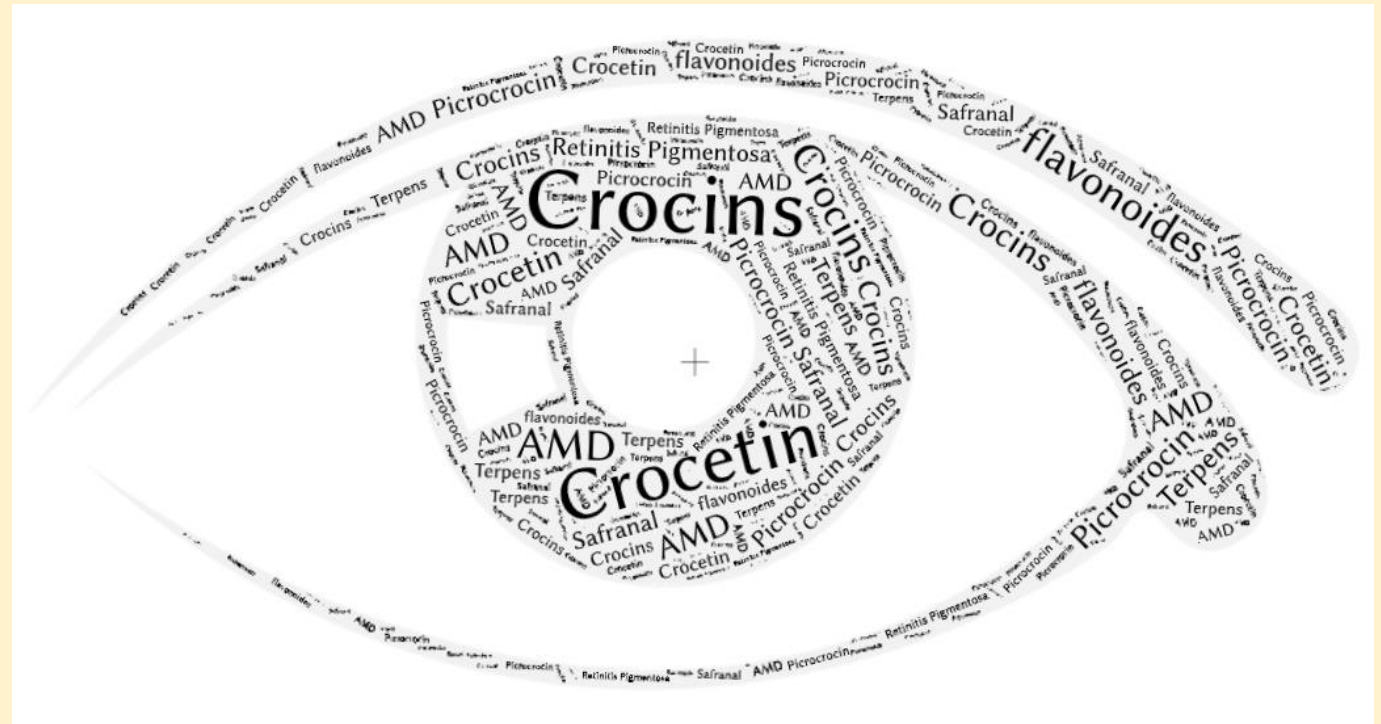
- 1. Gastrointestinal tract:** Antispasmodic, digestive and carminative.
- 2. Genital tract:** Emmenagogue (promotes menstrual discharge), aphrodisiac (Exciting sexual desire)
- 3. Respiratory tract:** Anti-asthmatic, anti-cough, expectorant
- 4. Central nervous system:** Sedative and hypnotic, analgesic, exhilarant.





*Hortus Novus* has a long experience (15 years) on:  
**Neuroprotective properties of saffron**  
applied to the field of **vision**  
(AMD, Stargardt, etc.)

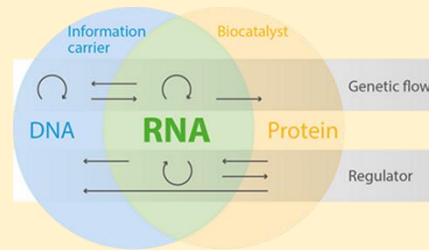
Why is  
Saffron Repron®  
better than other  
antioxidants?



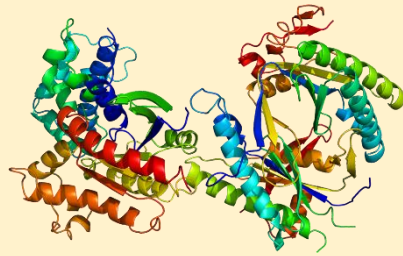
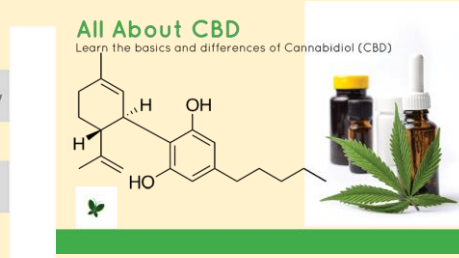


# Saffron Repron® Multi-level Activity

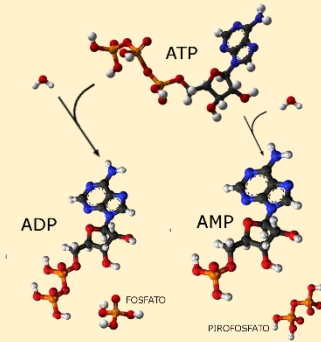
## Genes and RNA



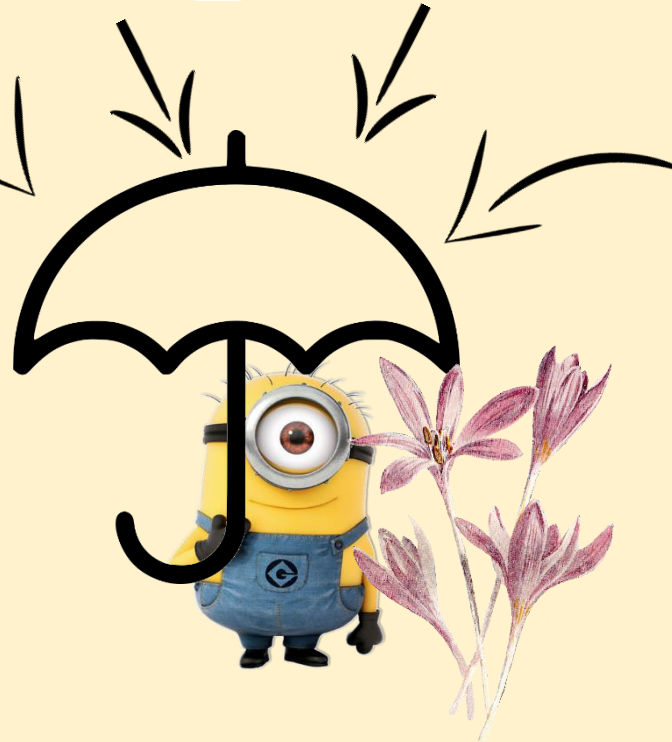
## Cannabinoid receptors



Extracellular matrix  
Metalloprotease



P2X7 ATP receptors





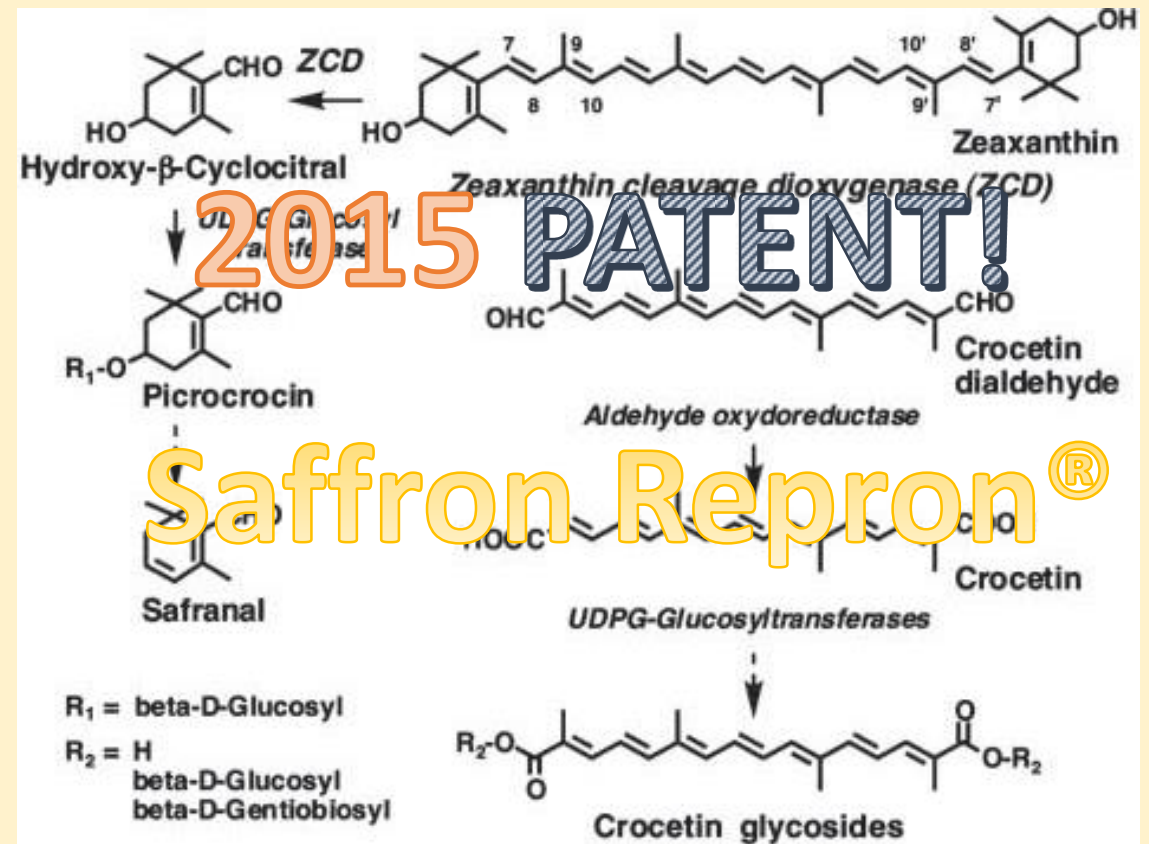
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# Saffron chemistry Is complex



Dr. Maria Maggi, *PhD*:

The Chemistry of the group





Saffron (“repron”): neurodegenerative diseases

## Evidence

- 1) Slow down/block of disease progression in animal models and patients with retinal neurodegenerative diseases (AMD, Stargardt)
- 2) Multiple ways of actions “in vivo” “in vitro”
- 3) Neuroprotective efficacy depends on the ratio among saffron chemical components (integrated activity of all components)



Saffron (“repron”): neurodegenerative diseases

Increases tissue resilience

“low doses of the toxins upregulate mechanisms of tissue resilience. At high doses, all the phytotoxins are tissue destructive (Table 1), but the high-dose-toxic part of the response attracts little investigation. It is the low-dose-resilience response that is strikingly counterintuitive, therapeutically promising, and increasingly investigated.”

Stone et al 2018 Acquired Resilience: An Evolved System of Tissue Protection in Mammals  
Dose Response Dec 27;16(4)





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Saffron Repron<sup>®</sup>

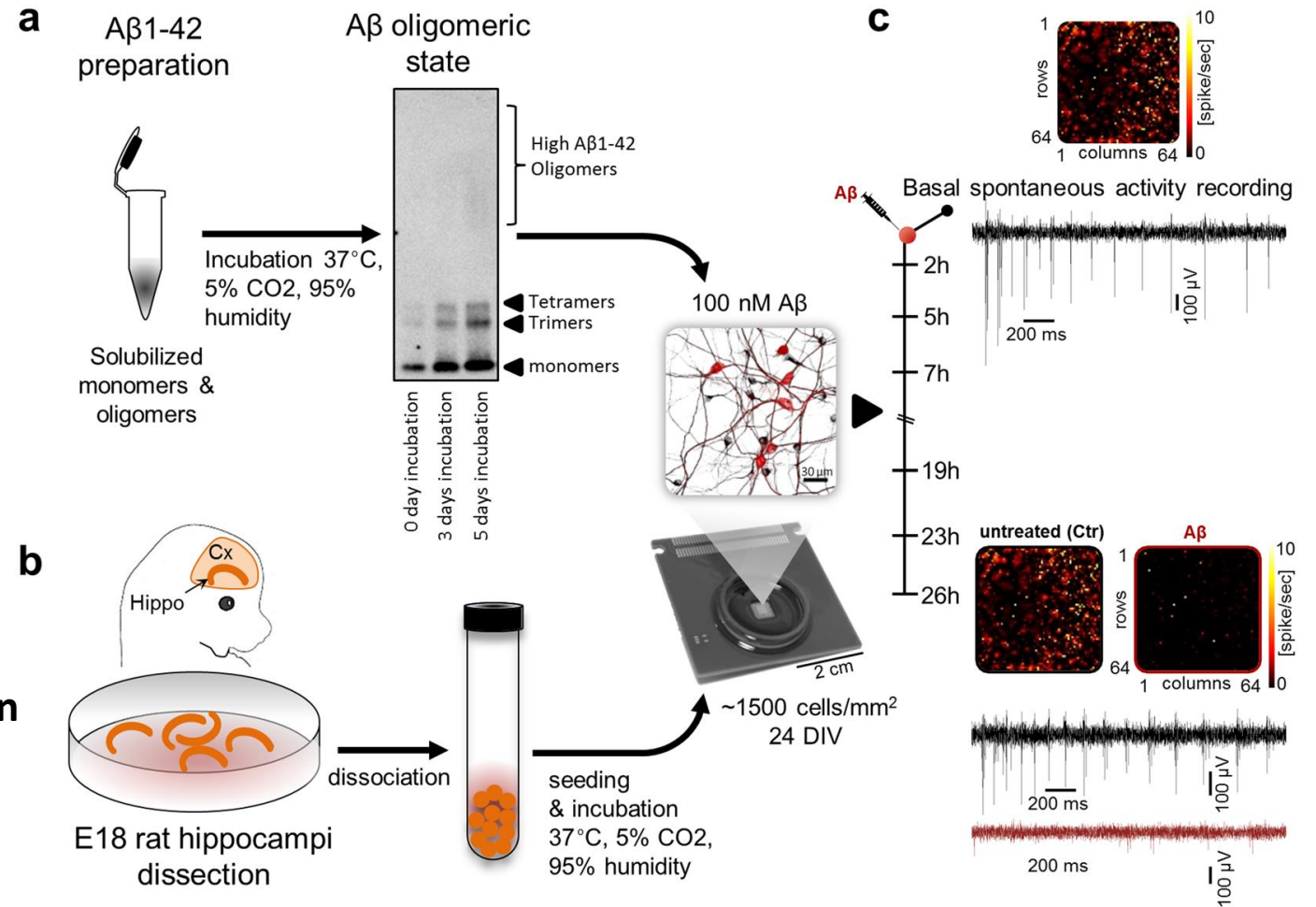
in Alzheimer's  
disease



Dr. Hayder Amin  
IIT

*High-resolution bioelectrical imaging of  
A $\beta$ -induced network dysfunction on  
CMOS-MEAs for neurotoxicity and rescue  
studies*

Sci Rep. 2017 May 26;7(1):2460.

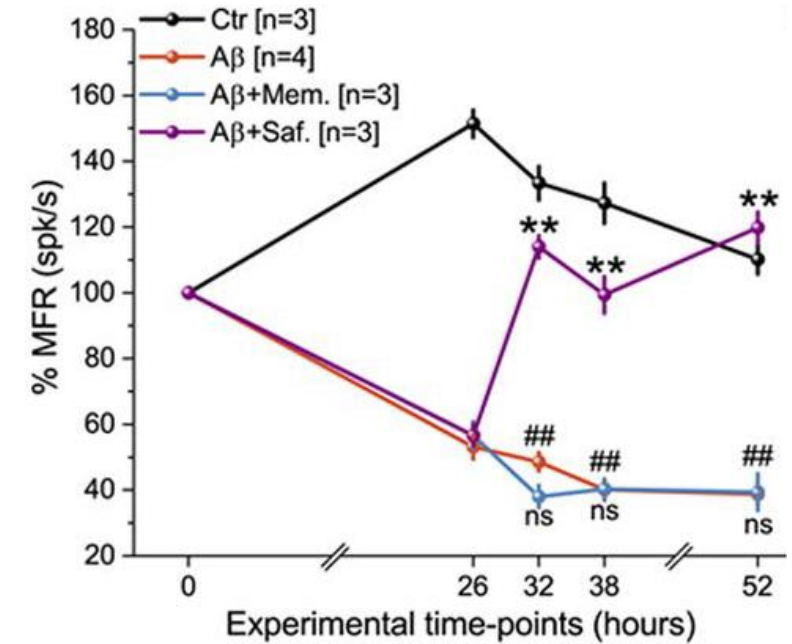
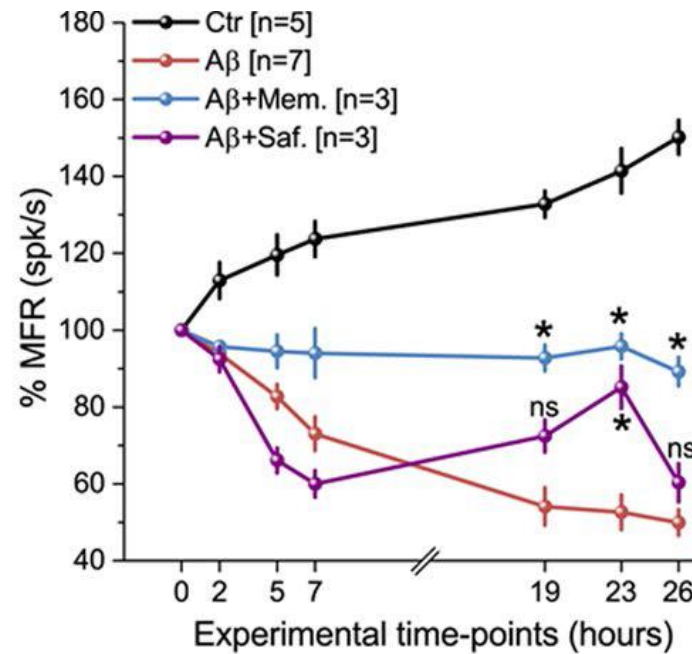
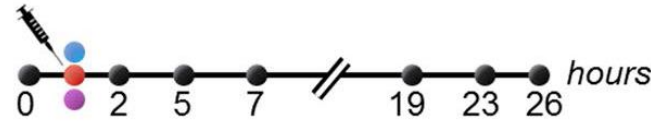




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# Saffron Repron® Vs. Memantine in Alzheimer's disease





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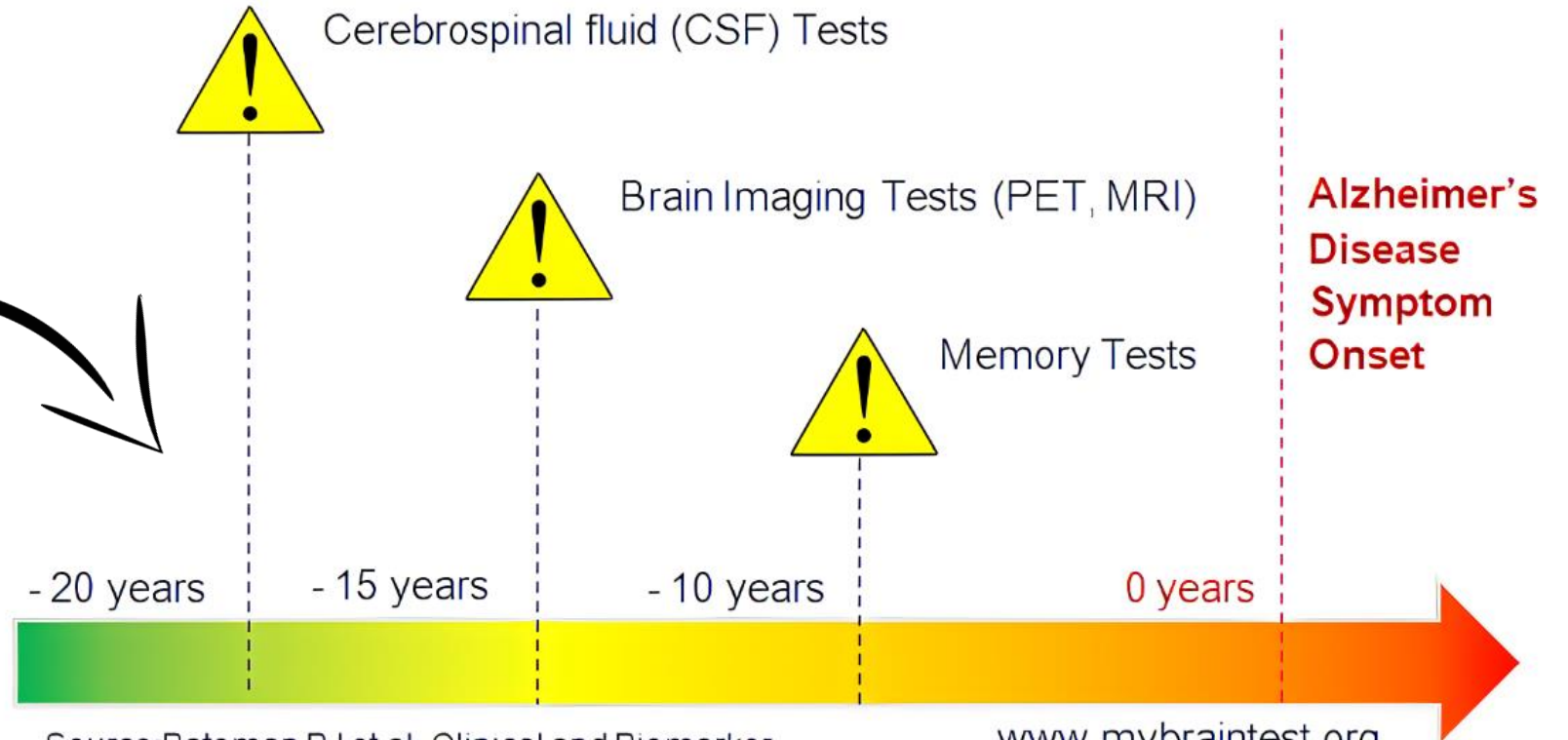
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## OUR STRATEGY:

To look at  
Visual-Memory-Motor  
integration



## Types of Tests for Detecting Alzheimer's Disease



Source Bateman RJ et al. Clinical and Biomarker  
Changes in Dominantly Inherited Alzheimer's  
Disease N Engl J Med 2012 Jul 11

[www.mybraintest.org](http://www.mybraintest.org)



**BIO AURUM**

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Patented by Bio Aurum

Already under evaluation  
on healthy subjects  
and patients

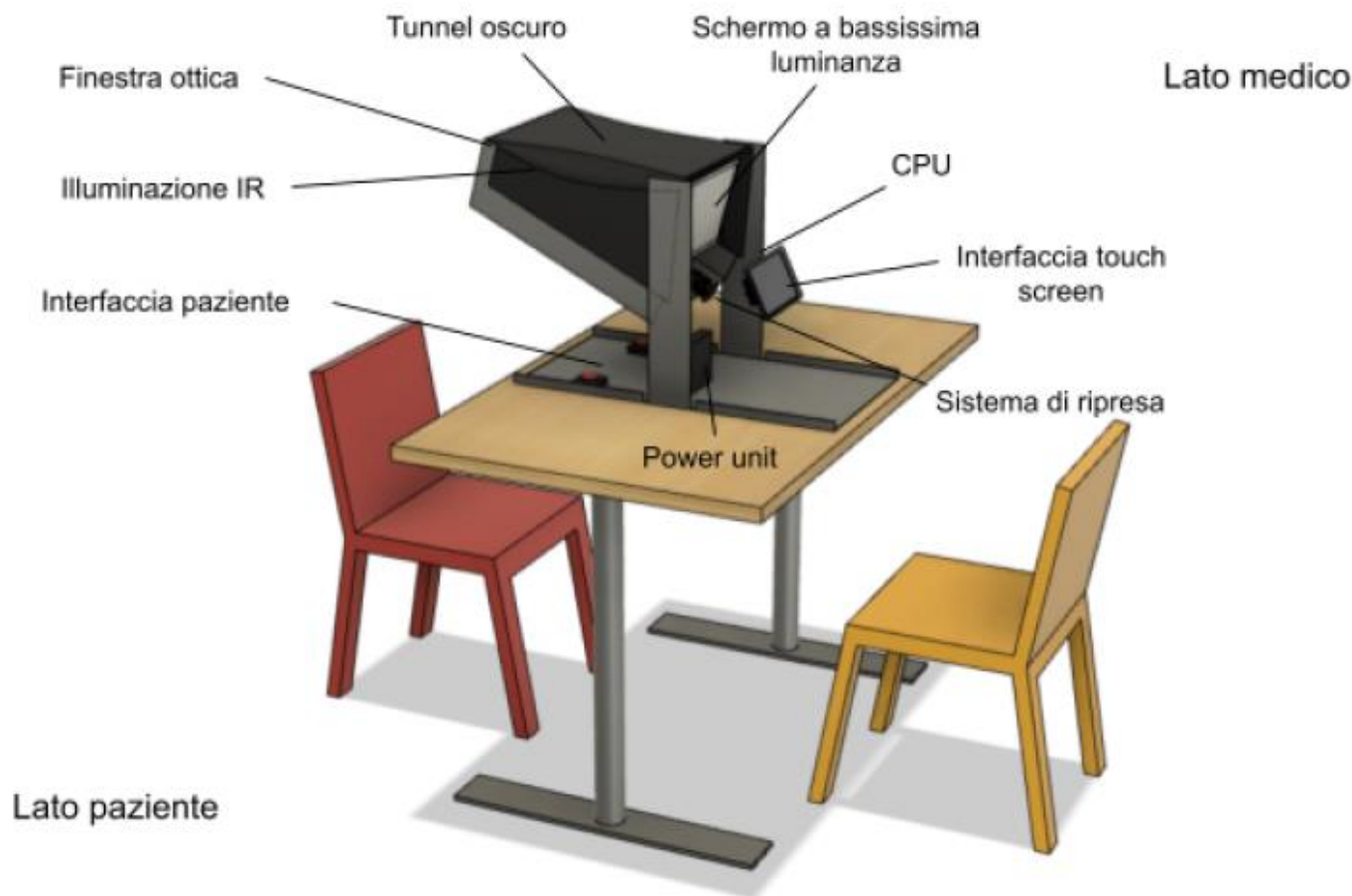
# The Prototype



**Prof. Bagni**  
**UNIFI**



**Prof. Contini**  
**UNIFI**







Thank you for your  
attention!

