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Serge A. Picaud

Short CV

born 2/21/1961

1987-1988 Max-Planck Institut of Brain Research, (Germany,) Pr H. Wässle,

1990 PhD Marseille University, Postdoc,

1991-1995 University of Berkeley (USA) Pr. F. Werblin.

1995-2002 INSERM-ULP Strasbourg (France) Dr Dreyfus - Pr Sahel

2002 - now INSERM-UPMC Paris (France) Pr Sahel

Current position: Principal investigator (Directeur de recherche, INSERM) at the Vision Institute in paris (team 7 : Retinal information processing : pharmacology and pathologies)

Main achievements

1. Glutamate transporters were shown to act as ionotropic receptors generating a feedback controlling glutamate release at the photoreceptor terminal.
2. Excessive activation of cyclic GMP-gated channels was found to trigger photoreceptor cell death in animal models of retinitis pigmentosa.

3. Cone photoreceptors of mammalian species were found to express GABA and glycine receptors.
4. The retinal toxicity of the GABA-transaminase inhibitor and antiepileptic drug, vigabatrin, was attributed to a taurine deficiency.

Documents

[CV of Serge A. Picaud \[pdf\]](#)



Serge A. Picaud

Research Group

Retinal information processing: Pharmacology and pathologies

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Contact

Institut De La Vision

17 rue Moreau
75 012 Paris
France

Phone: (33) 1 53 46 25 92
Fax: (33) 1 53 46 25 02

Email
[serge.picaud\[at\]inserm.fr](mailto:serge.picaud[at]inserm.fr)

Website
www.institut-vision.org

Scientific Interest

Our team investigates cellular mechanisms in retinal information processing to take advantage of this knowledge to design therapeutic or rehabilitative strategies. This project has first focused on the

photoreceptor synapse with a specific emphasis on its inhibitory feedbacks. We thus demonstrated the presence of GABA and glycine receptors in mammalian cone photoreceptors.

In parallel, we examined the pathological role of GABA when discovering the origin for the toxicity of an anti-epileptic drug inhibiting the GABA-transaminase responsible for the neurotransmitter degradation. More recently, we enlarged our interest to retinal ganglion cell function and, in parallel, to their neuroprotection in glaucoma or their activation by retinal prostheses for restoring vision in blind patients.

Memberships

- Association for Research in Vision and Ophthalmology (ARVO)
- Scientific committee for the French federation of blinds

Further Activities

- Teaching in the master for neurosciences and different schools (Ecole Normale supérieure)
- Public lectures on artificial retina and/or new therapeutic strategies in ophthalmology

Key Publications

1. Jammoul F*, Wang Q*, Nabbout R, Coriat C, Duboc A, Simonutti M, Dubus E, Craft C M, Ye W, Collins S D, Dulac O, Chiron C, Sahel J A, Picaud S.
Taurine deficiency is a cause of vigabatrin-induced retinal phototoxicity
Annals of Neurology (2009) 65:98-107.
2. Ellouze S, Augustin S, Bouaita A, Bonnet C, Simonutti M, Forster V, Picaud S, Sahel J, Corral-Debrinski M.
Optimized allotopic expression of the human mitochondrial ND4 gene protects rat retinal ganglion cells undergoing injury due to the expression of its counterpart bearing the deleterious G11778A mutation.
Am. J. Hum. Genet. 2008, 83, 373-87.
3. Guyomard JL, Rosolen SG, Paques M, Delyfer MN, Simonutti M, Tessier Y, Sahel JA, Legargasson JF, Picaud S
A low cost and simple imaging technique of the anterior and posterior segments: eye fundus, ciliary bodies, irido-corneal-angle.
Invest Ophthalmol Vis Sci. (2008) 49, 5168-74.
4. Wang Q, Jammoul F, Duboc A, Gong J, Simonutti M, Dubus E, Craft C, Ye W, Sahel JA, Picaud S
Treatment of epilepsy: the GABA-transaminase inhibitor, vigabatrin, induces neuronal plasticity in the mouse retina
Eur J Neurosci (2008) 27, 2177–2187.
5. Gong J, Jellali A, Forster V, Mutterer J, Dubus E, Altmann WD, Sahel JA, Rendon A, Picaud S.
The toxicity of the PrP106-126 prion peptide on cultured photoreceptors correlates with the prion protein distribution in the mammalian and human retina.
Am J Pathol. (2007) 170:1314-24.
6. Helmlinger D., Hardy S., Abou-Sleymane G, Eberlin A., Bowman A. B., Gansmüller A., Picaud S., Zoghbi H.Y., Trottier Y., Tora L., Devys D.
Glutamine-expanded ataxin-7 alters TFTC/STAGA recruitment and chromatin structure leading to photoreceptor dysfunction.
Plos Biol. (2006) 4(3):e67.
7. Balse E., Tessier L.-H., Forster V., Roux M.J., Sahel J.A. and Picaud S.
Glycine receptors in a population of adult mammalian cones
J. Physiol. (Lond.) (2006) 571:391-401.
8. Vallazza-Deschamps G., Cia D., Gong J., Jellali A., Duboc A., Forster V., Sahel J.A., Tessier L.H., Picaud S.
Excessive activation of cyclic nucleotide-gated channels contributes to neuronal degeneration of

photoreceptors.

European Journal of Neuroscience (2005) 22, 1013-1022.

9. Cia D., Bordais A., Varela C., Forster V., Sahel J.A., Rendon A. and Picaud S.

Voltage-gated channels and calcium homeostasis in mammalian rod photoreceptors

J. Neurophysiol. (2005) 93: 1468-1475.

10. Duboc A., Hanoteau N., Simonutti M., Rudolf G., Nehlig A., Sahel J.A., Picaud S.

Vigabatrin, the GABA-transaminase inhibitor, damaged cone photoreceptors in rats.

Annals of Neurology (2004) 55: 695-705.

Research Groups

---European Vision Research---

People

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