



## Astrocytic contribution to synaptic transmission

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Thursday, November 19<sup>th</sup> 2015, 16:00h

Life & Brain Center

Seminar Room, Ground Floor

*Note:* This presentation will take place immediately after the talk by J. M. Christie, subsequently, attendees are invited to a wine and cheese reception.

A growing body of evidence accumulated over the last decade led to the emerging concept of the tripartite synapse that considers astrocytes as active partners of chemical synapses. We have shown that astrocytes were contributing to synaptic plasticity through the release of D-serine, an endogenous co-agonist of NMDA receptors. More recently, we have provided evidence that membrane trafficking of the glutamate transporter GLT-1 in astrocytes was shaping the excitatory signal by facilitating the removal of glutamate from the synaptic cleft. It thus appears that astrocytes can contribute in a very significant manner to cerebral communication.

### *Selected Publications*

Murphy-Royal C, Dupuis JP, Varela JA, Panatier A, Pinson B, Baufreton J, Groc L, **Oliet SH**. (2015) Surface diffusion of astrocytic glutamate transporters shapes synaptic transmission. *Nat Neurosci*, 18(2): 219-226.

Araque A, Carmignoto G, Haydon PG, **Oliet SH**, Robitaille R, Volterra A. (2014) Gliotransmitters travel in time and space. *Neuron*, 19;81(4): 728-739.

Papouin T, Ladépêche L, Ruel J, Sacchi S, Labasque M, Hanini M, Groc L, Pollegioni L, Mothet JP, **Oliet SH**. (2012) Synaptic and Extrasynaptic NMDA Receptors Are Gated by Different Endogenous Coagonists. *Cell*, 150(3): 633-646.

Henneberger C, Papouin T, **Oliet S**, Rusakov DA. (2010) Long-term potentiation depends on release of d-serine from astrocytes. *Nature*, 463(7278): 232-236.