

# The voltage-gated T-type Ca<sup>2+</sup> channel is key to the sperm motility of Atlantic salmon (*Salmo salar*)

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Ca<sup>2+</sup> is a key element in the sperm activation process of *Salmo salar*. However, the molecular mechanisms by which this ion enters the sperm cell have been poorly studied. In this study, we examined, for the first time, the role of the voltage-gated T-type Ca<sup>2+</sup> channel in the activation of sperm motility of *Salmo salar*. Using an in vitro inhibition assay, a significant decrease in total and progressive motility ( $P < 0.0001$ ) was observed in *Salmo salar* sperm when they were treated with NNC-55-0396, a highly selective blocker. The in silico analysis showed that this blocker is docked with a strong affinity for the pore of the voltage-gated T-type calcium channel suggesting the blocking of Ca<sup>2+</sup> ions. The results show that the T-type voltage-gated Ca<sup>2+</sup> channel is key to sperm motility in *Salmo salar*. © 2020, Springer Nature B.V.

In silico

Motility

NNC 55-0396

*Salmo salar*

Voltage-gated Ca<sup>2+</sup> channels T-type