

Vasopressin Increases Human Cooperative Behaviour

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Abstract: No other species shows the level of cooperative behavior that humans do. From the construction of pyramids to spice trading to international response to catastrophes, an ever-increasing scale of cooperation marks the history of mankind. Little is known, however, about the biological basis of cooperation. Here we show that intranasal administration of vasopressin, a neuropeptide that mediates social behaviors like pair bonding and aggression in mammals causes an increase in human willingness to engage in cooperative behavior. We further show that the effect of vasopressin on cooperation is not due to a general increase in the readiness to bear risks. Using functional brain imaging data we show that Vasopressin reduces perception of social risk by down-regulating neural activity in the left dorsolateral prefrontal cortex and further strengthens the functional connectivity of this brain region with the left pallidum a brain nuclei which harbors high density of vasopressin V1 receptors and is known to play a role in mammalian social bonding and monogamous behavior. This is the first study to date reporting a substantial impact of vasopressin on human cooperative behavior, which might rely on the distinct task design compared to previous research. Our findings further shape the essential role of vasopressin in prosocial approach behavior, as established by animal research.

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