The studies of the last years have shown that empathy can be observed not only in humans. Some emotional behaviors have been described in primates and rodents. For example, it has been observed that rats released entrapped cage mate and even shared a piece of chocolate with him. Such results fuelled theories about evolutionary roots of empathy. One of the most influential models of empathy assumes that more sophisticated empathic behaviors evolved from simple emotional contagion, i.e., ability to share emotional states between individuals. Several mouse and rat experimental models of emotional contagion have been developed. These models offer a unique opportunity to get insight into mechanisms of emotional contagion by manipulating neuronal activity, which is not possible in human studies for ethical reasons. However, we do not know whether the assumption about similar neuronal mechanisms underlying emotional contagion in rat and human holds true. Thus, we do not know whether we can use rat models to explain how human brain controls empathic behaviors. This project aims at testing the hypothesis about common neuronal mechanisms of emotional contagion in rats and humans by studying patterns of brain activation in humans in two simple models of emotional contagion and comparing them to the results obtained before in similar behavioral models in rats. To get insight into the evolutionary roots and adaptive role of the investigated behaviors we will test whether socially transferred emotions facilitate learning and, if so, what are the brain mechanisms underlying this phenomenon. We also plan to investigate whether transfer of emotions between humans and rats is possible. The effects of emotional arousal of human subjects on the brain activation of rats would support the hypothesis about universal nature of danger signals. The results obtained in the course of the project will undoubtedly contribute important information to the mainstream research conducted in the field of social interaction.