

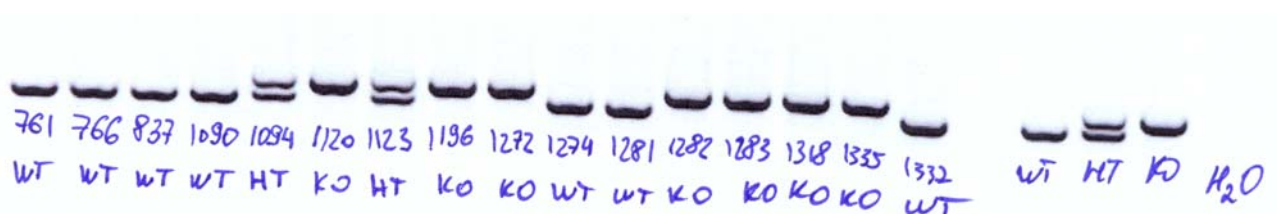
Report on practice in Italian Institute of Technology

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This practical training was held in laboratory of Raul Gainetdinov at department of Department of Neuroscience and Brain Technologies, Istituto Italiano di Tecnologia (IIT), Genova, Italy, 15/05/2012-12/08/2012.

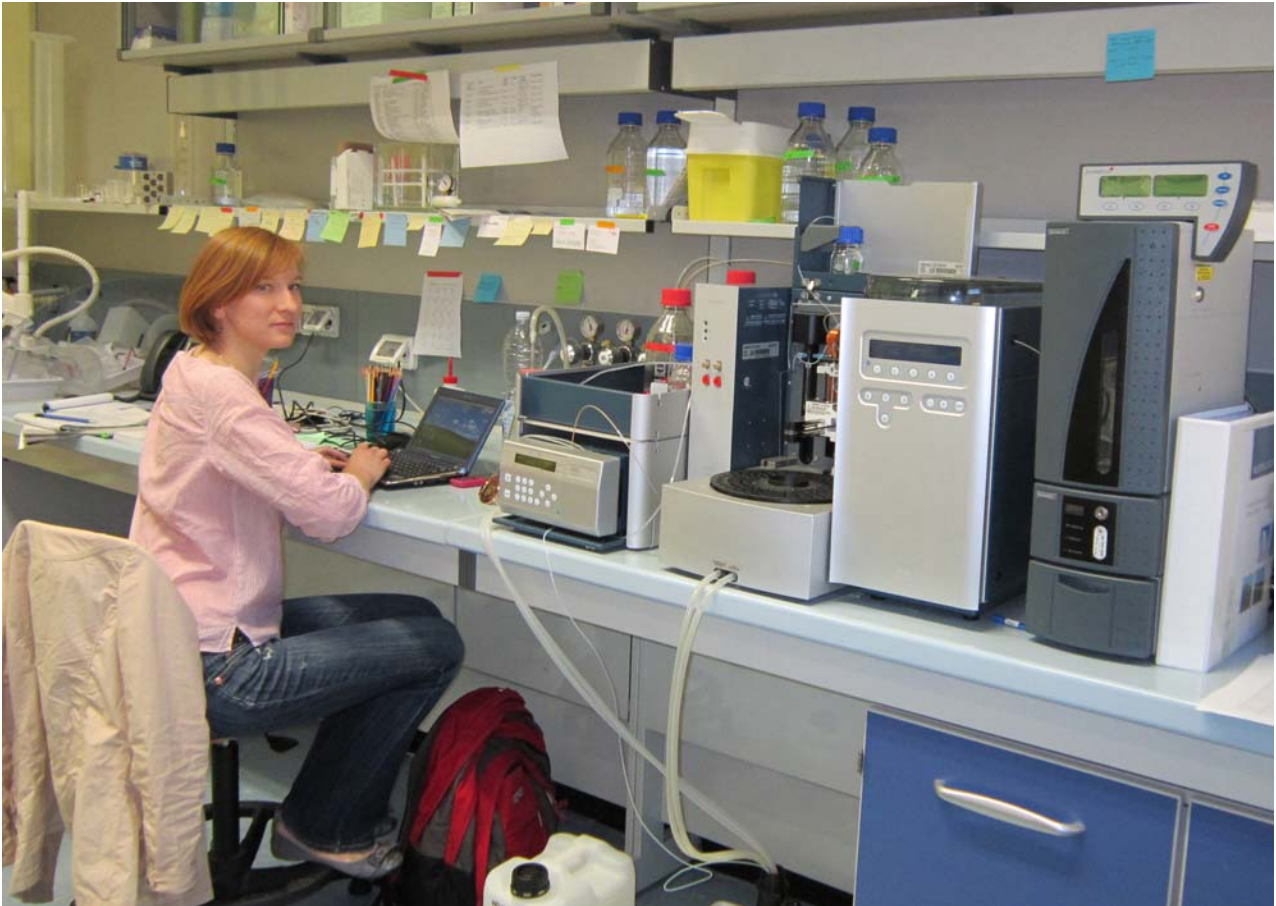
The main goal of the practice was to learn biochemical and molecular methods to study role of monoamine. Monoamines, such as dopamine, are key neurotransmitters in the CNS that regulate behavior and motor activity. Their dysfunctions are found in Parkinson's Disease, schizophrenia and ADHD. By using mutant mice deficient in critical components of dopamine homeostasis and GPCR regulation, the mechanisms of dopamine neurotransmission can be studied. Also, in laboratory of Raul Gainetdinov role of trace amines and their receptors (TAARs) in neuronal functions is studied.

During my practice, I worked with knockout mice strains (knockouts on TAAR1, TAAR5), as well as with wildtype mice. To evaluate allele variance of target gene I've learned to do genotyping of animals using skin samples.



During my practice I've learned microdialysis technic. The technique of microdialysis enables sampling and collecting of small-molecular-weight substances from the interstitial space. It is a widely used method in neuroscience and is one of the few techniques available that permits quantification of neurotransmitters, peptides, and hormones in the behaving animal. We inserted microdialysis probes in striatum area of animal brain. In collected samples we measured concentration of dopamine, serotonin and their metabolites. This method allows to estimate dopamine release level in selected area in free moving animals and change of dopamine release after different pharmacological

agents. To estimate total dopamine level in brain area we measured monoamines levels in brain tissue samples. To measure levels of monoamine I've learned to perform High-performance liquid chromatography.



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