

The role of stress in cortico-basal ganglia loop processing and instrumental conditioning

Results:

The data obtained in this project originates the following conclusions:

- Chronic exposure to stress results in impaired goal-directed behavior and increased predisposition for habitual strategies.
- Chronic stress triggers a divergent structural reorganization of corticostriatal circuits, suggesting that the induced damage to the associative network drives behavioral control to the more wired sensorimotor circuit.
- Our electrophysiological data *in vivo* indicates that the structural reorganization of corticostriatal circuits following chronic stress causes changes in neuronal activity in these networks.

Published work:

The work developed under this project resulted in the following publications:

Full-papers:

Dias-Ferreira E, Sousa JC, Melo I, Morgado P, Mesquita AR, Cerqueira JJ, Costa RM, Sousa N. Chronic stress causes frontostriatal reorganization and affects decision-making. *Science*, (2009) 325:621-5.

Abstracts:

Dias-Ferreira E, Sousa JC, Melo I, Mesquita AR, Cerqueira JJ, Costa RM, Sousa N. Chronic stress causes corticostriatal reorganization and affects decision-making. Society for Neuroscience Abstracts, 38th Annual Meeting, Washington, DC, USA. (2008)

Dias-Ferreira E, Melo I, Jin X, Sousa J, Cerqueira J, Sousa N and Costa R Chronic stress affects decision-making strategies: structural and physiological correlates. *Frontiers in Systems Neuroscience*. Conference Abstract: Computational and systems neuroscience. doi: 10.3389/conf.neuro.06.2009.03.348. Salt Lake City, UT, USA. (2009)

Dias-Ferreira E, Melo I, Jin X, Sousa JC, Cerqueira JJ, Sousa N and Costa RM Chronic stress affects decision-making strategies: structural and physiological correlates. *Frontiers in Neuroscience*. Conference Abstract: 11th Meeting of the Portuguese Society for Neuroscience. doi: 10.3389/conf.neuro.01.2009.11.008. Braga, Portugal. (2009)

Dias-Ferreira E, Sousa JC, Jin X, Melo I, Cerqueira JJ, Sousa N, Costa RM. Physiological correlates of chronic stress-induced bias in behavioral strategies. Society for Neuroscience Abstracts, 39th Annual Meeting, Chicago, IL, USA. (2009)

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Area(s) of interest:

Neurosciences; stress; decision-making

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