

## Peer-reviewed Publications

### 2012

Controlling Human Striatal Cognitive Function via the Frontal Cortex.

van Schouwenburg MR, O'Shea J, Mars RB, Rushworth MF, Cools R.

J Neurosci. 2012 Apr 18;32(16):5631-7.

Aberrant reward processing in Parkinson's disease is associated with dopamine cell loss.

Aarts E, Helmich RC, Janssen MJ, Oyen WJ, Bloem BR, Cools R.

Neuroimage. 2012 Feb 15;59(4):3339-46. Epub 2011 Dec 6.

Ventral striatum response during reward and punishment reversal learning in unmedicated major depressive disorder.

Robinson OJ, Cools R, Carlisi CO, Sahakian BJ, Drevets WC.

Am J Psychiatry. 2012 Feb;169(2):152-9.

Tryptophan depletion disinhibits punishment but not reward prediction: implications for resilience.

Robinson OJ, Cools R, Sahakian BJ.

Psychopharmacology (Berl). 2012 Jan;219(2):599-605. Epub 2011 Jul 19.

CNTRICS imaging biomarkers final task selection: Long-term memory and reinforcement learning.

Ragland JD, Cohen NJ, Cools R, Frank MJ, Hannula DE, Ranganath C.

Schizophr Bull. 2012 Jan;38(1):62-72. Epub 2011 Nov 18.

### 2011

Human cognitive flexibility depends on dopamine D2 receptor signaling.

van Holstein M, Aarts E, van der Schaaf ME, Geurts DE, Verkes RJ, Franke B, van Schouwenburg MR, Cools R.

Psychopharmacology (Berl). 2011 Dec;218(3):567-78. Epub 2011 May 25.

Nitric oxide synthase genotype modulation of impulsivity and ventral striatal activity in adult ADHD patients and healthy comparison subjects.

Hoogman M, Aarts E, Zwiens M, Slaats-Willemse D, Naber M, Onnink M, Cools R, Kan C, Buitelaar J, Franke B.

Am J Psychiatry. 2011 Oct;168(10):1099-106. Epub 2011 Jul 1.

Distinct linear and non-linear trajectories of reward and punishment reversal learning during development: relevance for dopamine's role in adolescent decision making.

van der Schaaf ME, Warmerdam E, Crone EA, [Cools R](#).

Dev Cogn Neurosci. 2011 Oct;1(4):578-90. doi: 10.1016/j.dcn.2011.06.007. Epub 2011 Jun 25.

Inverted-U-shaped dopamine actions on human working memory and cognitive control.

[Cools R](#), D'Esposito M.

Biol Psychiatry. 2011 Jun 15;69(12):e113-25. Epub 2011 May 4. Review.

Dopaminergic control of the striatum for high-level cognition.

[Cools R](#).

Curr Opin Neurobiol. 2011 Jun;21(3):402-7. Epub 2011 Apr 29. Review.

Habitual versus goal-directed action control in Parkinson disease.

de Wit S, Barker RA, Dickinson AD, [Cools R](#).

J Cogn Neurosci. 2011 May;23(5):1218-29. Epub 2010 Apr 30.

Feedback-related negativity codes prediction error but not behavioral adjustment during probabilistic reversal learning.

Chase HW, Swainson R, Durham L, Benham L, [Cools R](#).

J Cogn Neurosci. 2011 Apr;23(4):936-46. Epub 2010 Feb 10.

Disentangling the roles of approach, activation and valence in instrumental and pavlovian responding.

Huys OJ, [Cools R](#), Gölzer M, Friedel E, Heinz A, Dolan RJ, Dayan P.

PLoS Comput Biol. 2011 Apr;7(4):e1002028. Epub 2011 Apr 21.

Striatal Dopamine and the Interface between Motivation and Cognition.

Aarts E, van Holstein M, [Cools R](#).

Front Psychol. 2011;2:163. Epub 2011 Jul 14.

Serotonin and dopamine: unifying affective, activational, and decision functions.

[Cools R](#), Nakamura K, Daw ND.

Neuropsychopharmacology. 2011 Jan;36(1):98-113. Epub 2010 Aug 25. Review.

## 2010

Striatal dopamine mediates the interface between motivational and cognitive control in humans: evidence from genetic imaging.

Aarts E, Roelofs A, Franke B, Rijpkema M, Fernández G, Helmich RC, [Cools R](#).

Neuropsychopharmacology. 2010 Aug;35(9):1943-51. Epub 2010 May 12.

Dopamine precursor depletion improves punishment prediction during reversal learning in healthy females but not males.

Robinson OJ, Standing HR, DeVito EE, [Cools R](#), Sahakian BJ.

Psychopharmacology (Berl). 2010 Aug;211(2):187-95. Epub 2010 May 22.

The human basal ganglia modulate frontal-posterior connectivity during attention shifting.

van Schouwenburg MR, den Ouden HE, [Cools R](#).

J Neurosci. 2010 Jul 21;30(29):9910-8.

Dissociable responses to punishment in distinct striatal regions during reversal learning.

Robinson OJ, Frank MJ, Sahakian BJ, [Cools R](#).

Neuroimage. 2010 Jul 15;51(4):1459-67. Epub 2010 Mar 18.

Top-down attentional control in Parkinson's disease: salient considerations.

[Cools R](#), Rogers R, Barker RA, Robbins TW.

J Cogn Neurosci. 2010 May;22(5):848-59.

Dopaminergic modulation of cognitive control: distinct roles for the prefrontal cortex and the basal ganglia.

van Schouwenburg M, Aarts E, [Cools R](#).

Curr Pharm Des. 2010;16(18):2026-32. Review.

## 2009

Dopamine release in dissociable striatal subregions predicts the different effects of oral methylphenidate on reversal learning and spatial working memory.

Clatworthy PL, Lewis SJ, Brichard L, Hong YT, Izquierdo D, Clark L, [Cools R](#), Aigbirhio FI, Baron JC, Fryer TD, Robbins TW.

J Neurosci. 2009 Apr 15;29(15):4690-6.

Switching between abstract rules reflects disease severity but not dopaminergic status in Parkinson's disease.

Kehagia AA, Cools R, Barker RA, Robbins TW.

Neuropsychologia. 2009 Mar;47(4):1117-27. Epub 2009 Jan 8.

Striatal dopamine predicts outcome-specific reversal learning and its sensitivity to dopaminergic drug administration.

Cools R, Frank MJ, Gibbs SE, Miyakawa A, Jagust W, D'Esposito M.

J Neurosci. 2009 Feb 4;29(5):1538-43.

CNTRICS final task selection: long-term memory.

Ragland JD, Cools R, Frank M, Pizzagalli DA, Preston A, Ranganath C, Wagner AD.

Schizophr Bull. 2009 Jan;35(1):197-212. Epub 2008 Oct 16. Review.

## **2008**

Acute tryptophan depletion in healthy volunteers enhances punishment prediction but does not affect reward prediction.

Cools R, Robinson OJ, Sahakian B.

Neuropsychopharmacology. 2008 Aug;33(9):2291-9. Epub 2007 Oct 17.

Role of dopamine in the motivational and cognitive control of behavior.

Cools R.

Neuroscientist. 2008 Aug;14(4):381-95. Review.

Methylphenidate has differential effects on blood oxygenation level-dependent signal related to cognitive subprocesses of reversal learning.

Dodds CM, Müller U, Clark L, van Loon A, Cools R, Robbins TW.

J Neurosci. 2008 Jun 4;28(23):5976-82.

Incentive motivation in first-episode psychosis: a behavioural study.

Murray GK, Clark L, Corlett PR, Blackwell AD, Cools R, Jones PB, Robbins TW, Poustka L.

BMC Psychiatry. 2008 May 8;8:34.

Working memory capacity predicts dopamine synthesis capacity in the human striatum.

Cools R, Gibbs SE, Miyakawa A, Jagust W, D'Esposito M.

J Neurosci. 2008 Jan 30;28(5):1208-12.

Serotonergic regulation of emotional and behavioural control processes.

Cools R, Roberts AC, Robbins TW.

Trends Cogn Sci. 2008 Jan;12(1):31-40. Epub 2007 Dec 19. Review.

## **2007**

Impulsive personality predicts dopamine-dependent changes in frontostriatal activity during component processes of working memory.

Cools R, Sheridan M, Jacobs E, D'Esposito M.

J Neurosci. 2007 May 16;27(20):5506-14.

L-DOPA disrupts activity in the nucleus accumbens during reversal learning in Parkinson's disease.

Cools R, Lewis SJ, Clark L, Barker RA, Robbins TW.

Neuropsychopharmacology. 2007 Jan;32(1):180-9. Epub 2006 Jul 12.

## **2006**

Effects of levodopa and subthalamic nucleus stimulation on cognitive and affective functioning in Parkinson's disease.

Funkiewiez A, Ardouin C, Cools R, Krack P, Fraix V, Batir A, Chabardès S, Benabid AL, Robbins TW, Pollak P.

Mov Disord. 2006 Oct;21(10):1656-62.

Serotonin transporter polymorphism mediates vulnerability to loss of incentive motivation following acute tryptophan depletion.

Roiser JP, Blackwell AD, Cools R, Clark L, Rubinsztein DC, Robbins TW, Sahakian BJ.

Neuropsychopharmacology. 2006 Oct;31(10):2264-72. Epub 2006 Mar 15. Erratum in:

Neuropsychopharmacology. 2006 Oct;31(10):2273.

Reversal learning in Parkinson's disease depends on medication status and outcome valence.

Cools R, Altamirano L, D'Esposito M.

Neuropsychologia. 2006;44(10):1663-73. Epub 2006 May 26.

Dopaminergic modulation of cognitive function-implications for L-DOPA treatment in Parkinson's disease.

Cools R.

Neurosci Biobehav Rev. 2006;30(1):1-23. Epub 2005 Jun 1. Review.

## **2005**

Individual differences in threat sensitivity predict serotonergic modulation of amygdala response to fearful faces.

Cools R, Calder AJ, Lawrence AD, Clark L, Bullmore E, Robbins TW.

Psychopharmacology (Berl). 2005 Aug;180(4):670-9. Epub 2005 Sep 14.

Tryptophan depletion disrupts the motivational guidance of goal-directed behavior as a function of trait impulsivity.

Cools R, Blackwell A, Clark L, Menzies L, Cox S, Robbins TW.

Neuropsychopharmacology. 2005 Jul;30(7):1362-73.

Serotonergic modulation of prefrontal cortex during negative feedback in probabilistic reversal learning.

Evers EA, Cools R, Clark L, van der Veen FM, Jolles J, Sahakian BJ, Robbins TW.

Neuropsychopharmacology. 2005 Jun;30(6):1138-47.

## **2004**

Chemistry of the adaptive mind.

Cools R, Robbins TW.

Philos Transact A Math Phys Eng Sci. 2004 Dec 15;362(1825):2871-88. Review.

Differential responses in human striatum and prefrontal cortex to changes in object and rule relevance.

Cools R, Clark L, Robbins TW.

J Neurosci. 2004 Feb 4;24(5):1129-35.

## **2003**

L-Dopa medication remediates cognitive inflexibility, but increases impulsivity in patients with Parkinson's disease.

Cools R, Barker RA, Sahakian BJ, Robbins TW.

Neuropsychologia. 2003;41(11):1431-41.

Using executive heterogeneity to explore the nature of working memory deficits in Parkinson's disease.  
Lewis SJ, Cools R, Robbins TW, Dove A, Barker RA, Owen AM.  
Neuropsychologia. 2003;41(6):645-54.

## **2002**

Defining the neural mechanisms of probabilistic reversal learning using event-related functional magnetic resonance imaging.

Cools R, Clark L, Owen AM, Robbins TW.

J Neurosci. 2002 Jun 1;22(11):4563-7.

Dopaminergic modulation of high-level cognition in Parkinson's disease: the role of the prefrontal cortex revealed by PET.

Cools R, Stefanova E, Barker RA, Robbins TW, Owen AM.

Brain. 2002 Mar;125(Pt 3):584-94.

## **Chapters**

Cools R (2006) Dopaminergic modulation of flexible cognitive control: The role of the striatum. In: *The neuroscience of rule-guided behavior*. Eds. S. A Bunge, J. D. Wallis.

Cools R (2006) Dopaminergic modulation of cognitive flexibility: The role of the striatum. In: *Mental Dysfunction in Parkinson's disease III*. Eds. E. Ch. Wolters, H.W., Berendse and C.J. Stam. Amsterdam: VU University Press.

Robbins TW, Crofts HS, Cools R, Roberts AC (2004) Catecholamines and Cognition: Bridging the Gap Between Animal Studies and the Clinical Syndromes. In: *Mental and Behavioral Dysfunction in Movement Disorders*. Eds E-A Bedard et al. Humana Press Inc., Totowa, NJ: 183-200.

Cools R and Roberts A. C (2004). The role of dopamine in cognition: Insights from neuropsychological studies in humans and non-human primates. In: *Prefrontal Cortex: from Synapse to Cognition*. Ed. S. Otani: 219-243.

Cools R, Swainson R, Owen AM, Robbins TW (1999). Cognitive Dysfunction in nondemented Parkinson's disease. In: *Mental Dysfunction in Parkinson's disease*. Eds. E.Ch. Wolters, Ph Scheltens, M W Berendse. Utrecht: Academic Pharmaceutical Productions bv.