RenaSci: Effects of Cocaine on Extracellular Levels of Dopamine and its Metabolites, DOPAC and HVA, in Rat Nucleus Accumbens

- RenaSci offers customised intracerebral microdialysis studies in freely-moving rats to investigate the neurochemical effects of centrally-acting drugs.
- Key features of our microdialysis studies are:
  - Single or dual probe
  - Compounds dosed po, ip, sc, iv or by reverse-dialysis
  - Simultaneous measurement of monoamines and metabolites, GABA, glutamate, acetylcholine
  - High sensitivity analysis by UHPLC-ECD and HPLC-ECD ALEXYS™ systems
  - Measurement of drug levels in microdialysates (pharm-analyt)

- Microdialysis studies can be used to evaluate brain neurochemistry during acute and chronic administration of drugs of abuse and throughout drug withdrawal. They can also be used to evaluate the effects of novel treatments for substance use disorders on these parameters.

- This study demonstrates that the psychostimulant and Schedule II controlled drug, cocaine, markedly increased extracellular levels of DA in the nucleus accumbens, consistent with its reinforcing properties. It also decreased DOPAC, and to a lesser extent, HVA, in this brain region.

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Results are adjusted means; n=5-7. SEMs are calculated from the residuals of the statistical model. Drug doses are for the free base. Vertical arrows indicate time of drug administration (0 min). Data were log-transformed and analysed by ANCOVA with log (baseline) as a covariate followed by Williams' test. Significant differences versus vehicle: *p<0.05, **p<0.01, ***p<0.001. DA (dopamine); DOPAC (3,4-dihydroxyphenylacetic acid); HVA (homovanillic acid)