Selective D3 receptor antagonist S33084 blocked quinolone-elicited effects upon Akt/GSK-3β and mTOR signaling.

**CONCLUSIONS / PERSPECTIVES**

- **Conclusions**
  - Quinolone induced a transient increase of phosphorylation of Akt, GSK-3β and mTOR downstream effectors in the rat striatum and nucleus accumbens with a maximal effect 10 min after injection. All protein phosphorylation levels returned to baseline at 20 min. Quinolone failed to increase phosphorylation of Akt, GSK-3β and mTOR targets in D3-KO mice.
  - Pharmacological and genetic approaches revealed a major role for D3 receptors in the effects of quinolone, though a contribution of D2 receptors cannot be excluded.

- **Perspectives**
  - Testing the influence of the mTORC1 inhibitor, rapamycin, on quinolone-induced activation of the mTOR pathway.
  - Evaluating the action of quinolone in the cortex, a structure involved in the pre-cognitive effects of D3 receptor antagonists and rapamycin.
  - Characterizing the molecular mechanisms involved in the recruitment of Akt by D2 and D3 receptor activation (e.g., role of Src, PI3-Kinase).