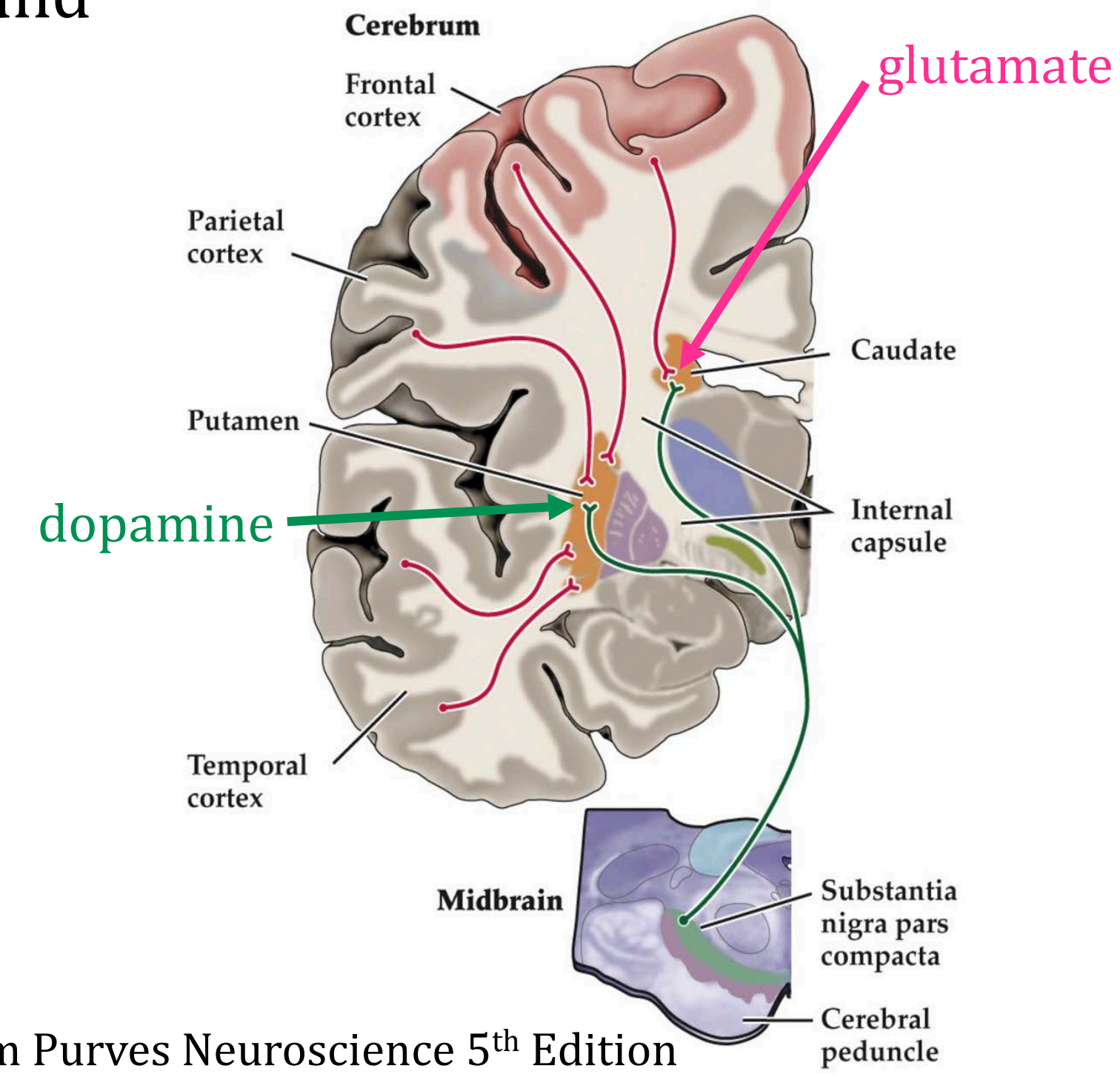


Dopamine binds a D1-D2 heteromer coupled to G_q to activate phospholipase C to increase dendritic branching in the developing Medium Spiny Neuron

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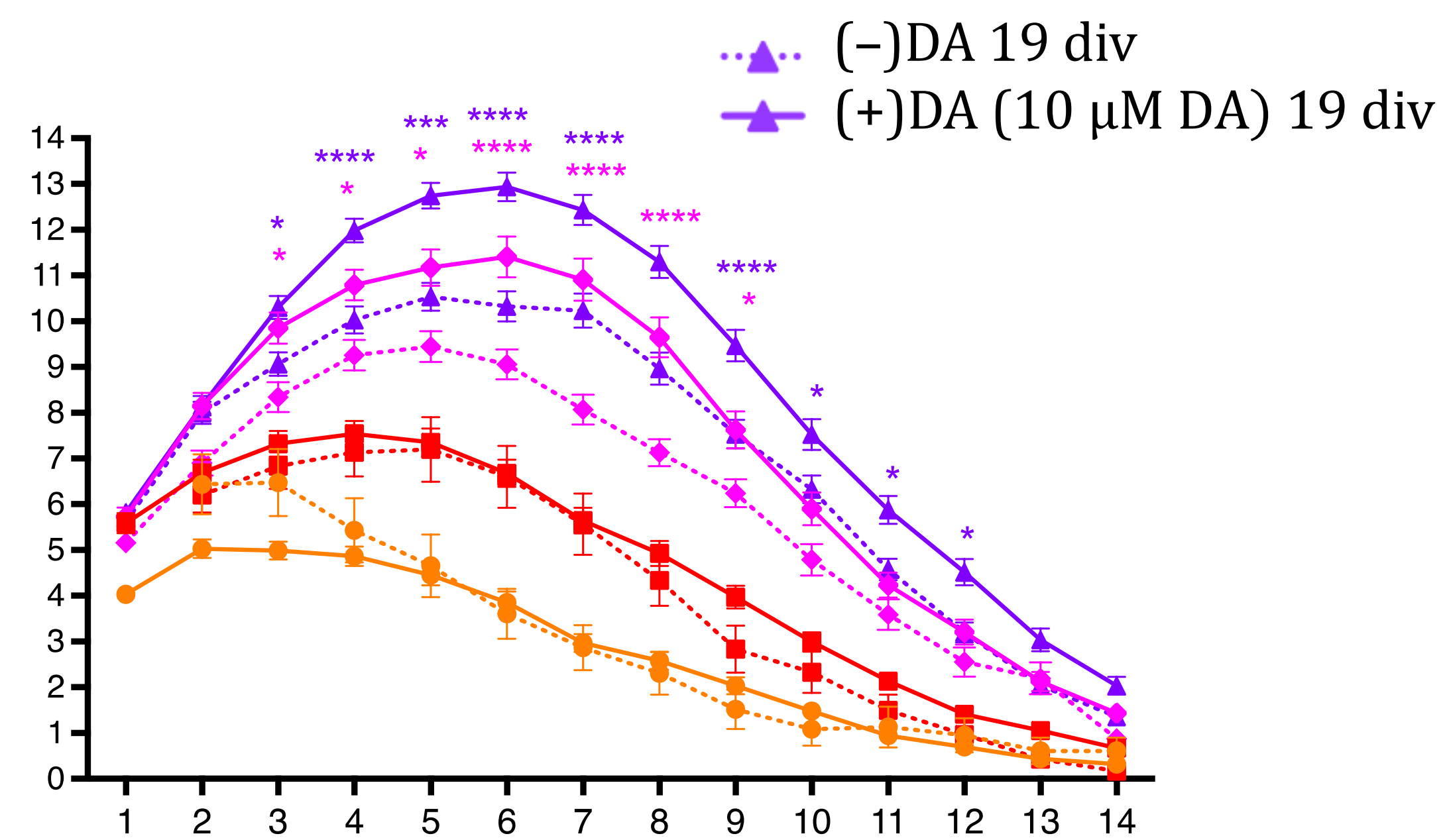


Background



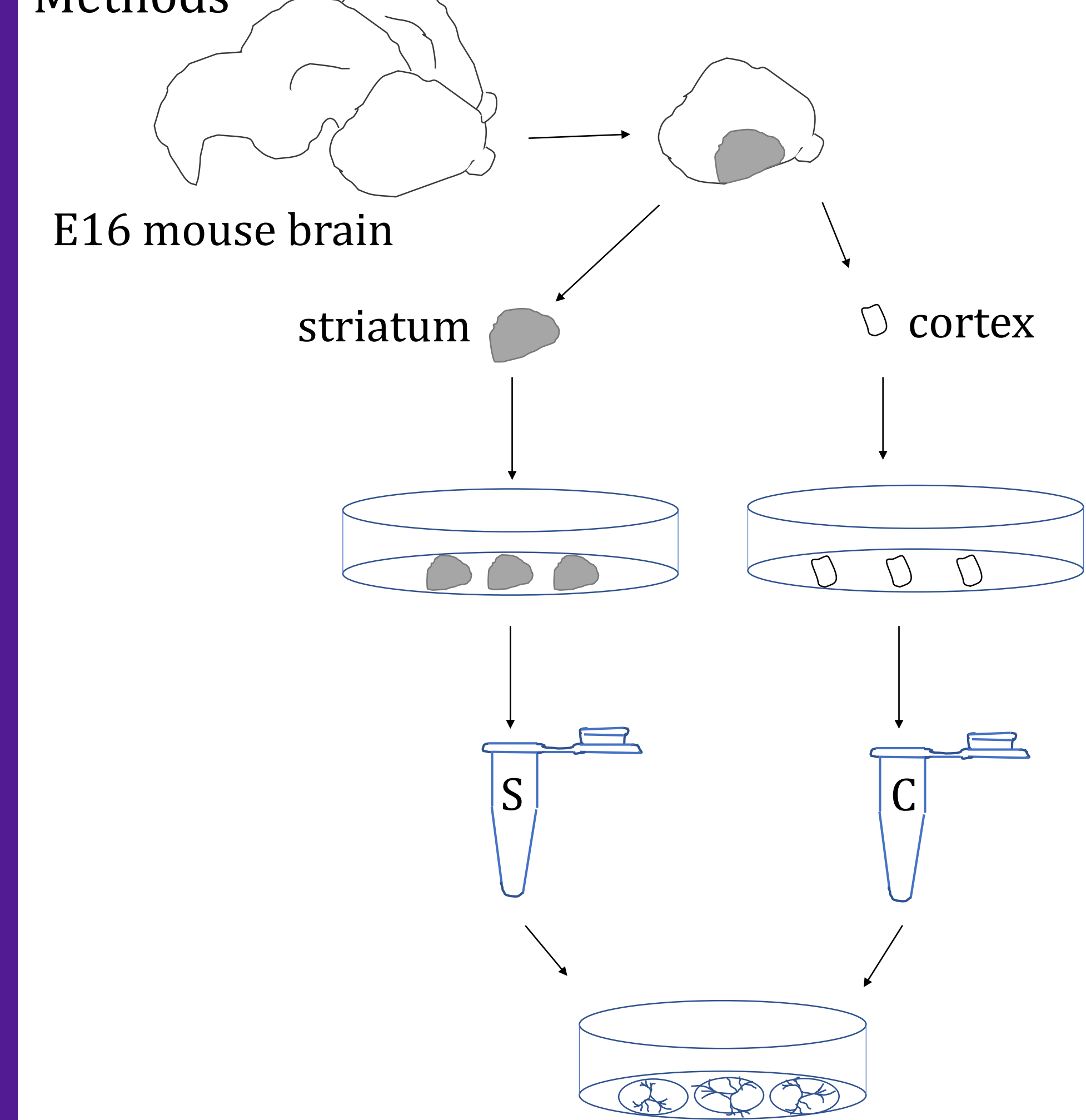
Modified from Purves Neuroscience 5th Edition

Dopamine (DA) enhances MSN dendritic branching by 19 div (Penrod et al., 2015)

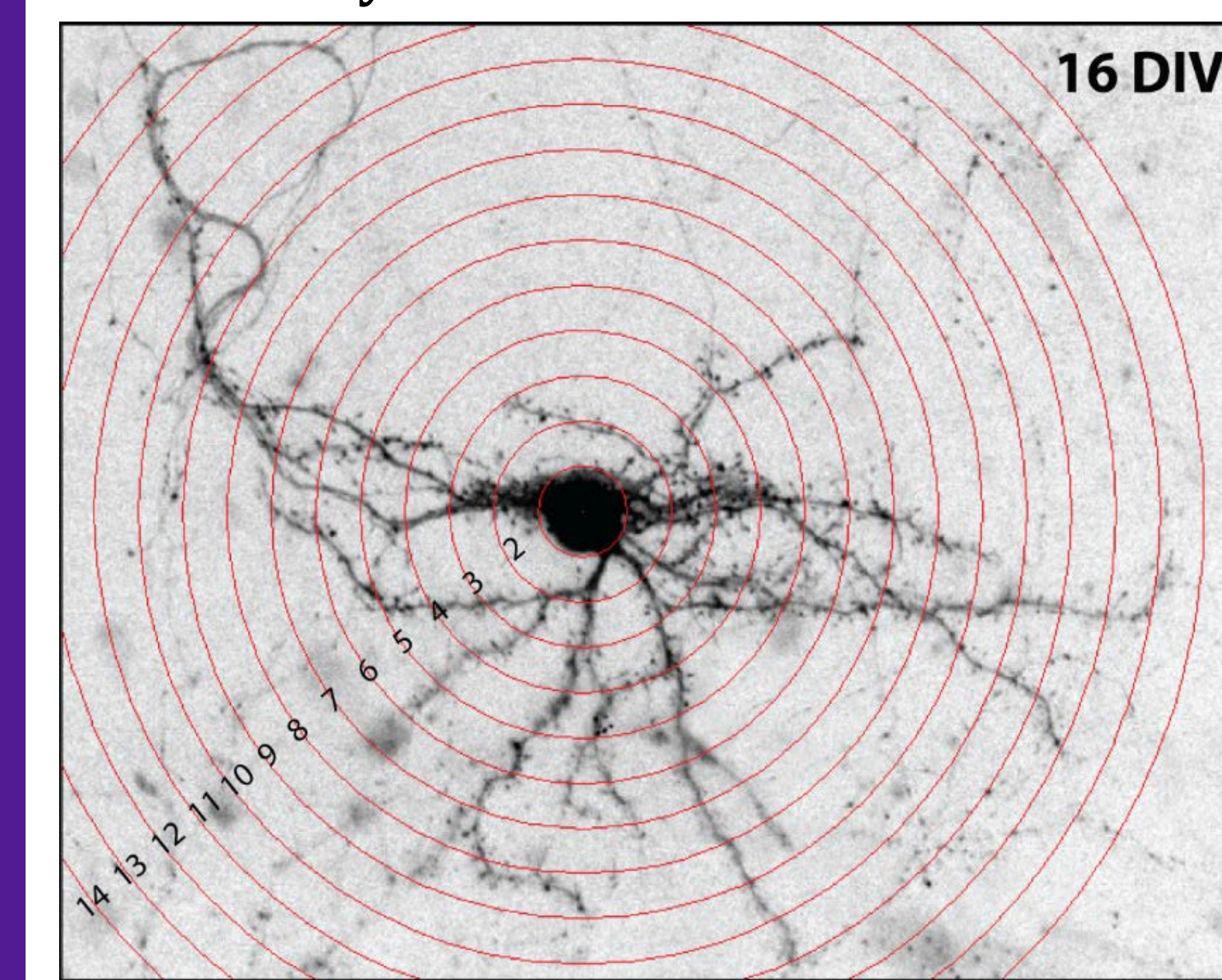


GOAL: Find the mechanism by which DA increases dendritic branching

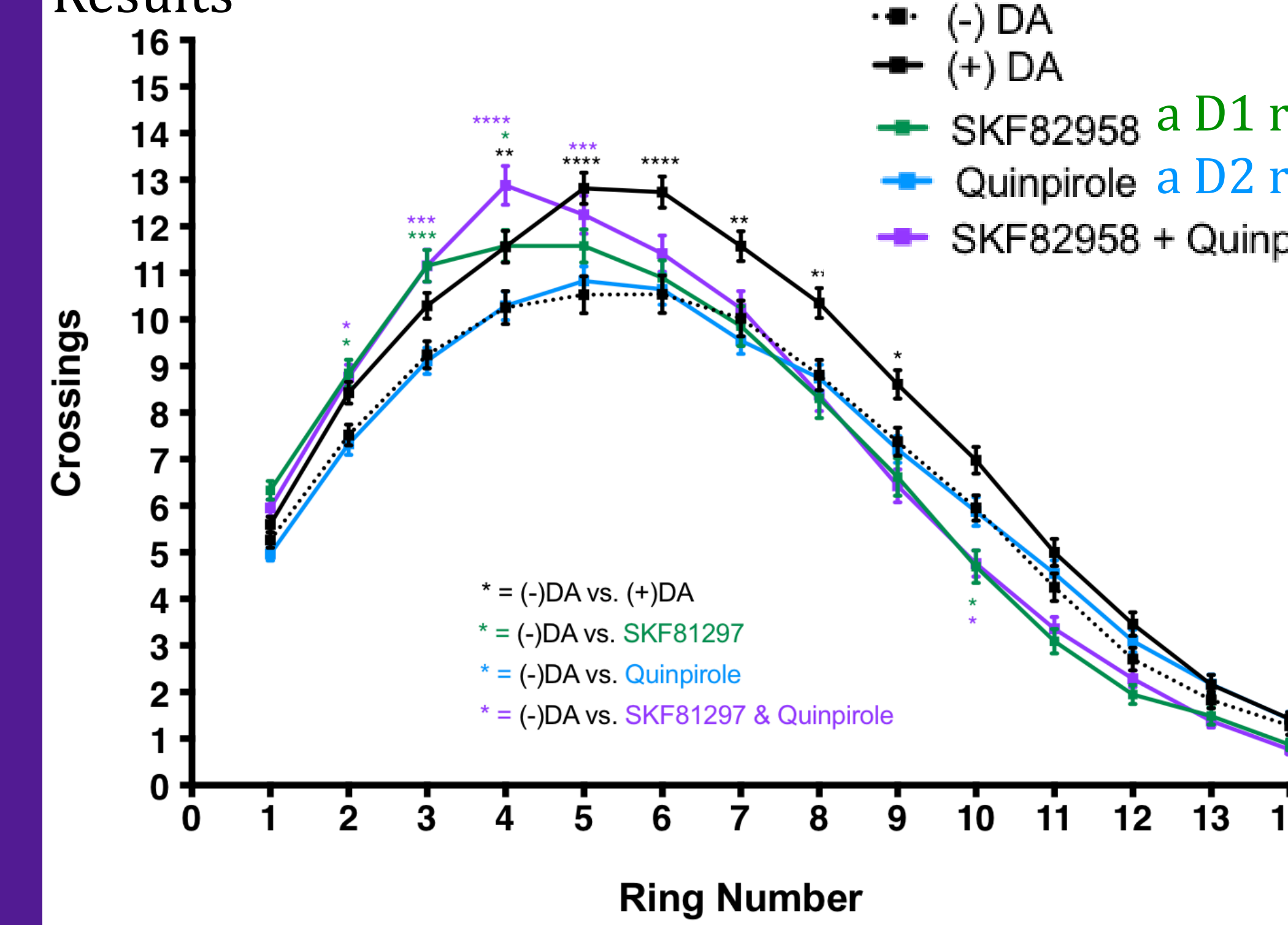
Methods



Sholl Analysis



Results



2 way ANOVA

* $p \leq 0.05$
** $p \leq 0.01$
*** $p \leq 0.001$
**** $p \leq 0.0001$

Fig. 1. 10 μM SKF82958 and 10 μM SKF82958 & 10 μM quinpirole increase dendritic branching proximal to the soma, but decrease it at distal ring loci.

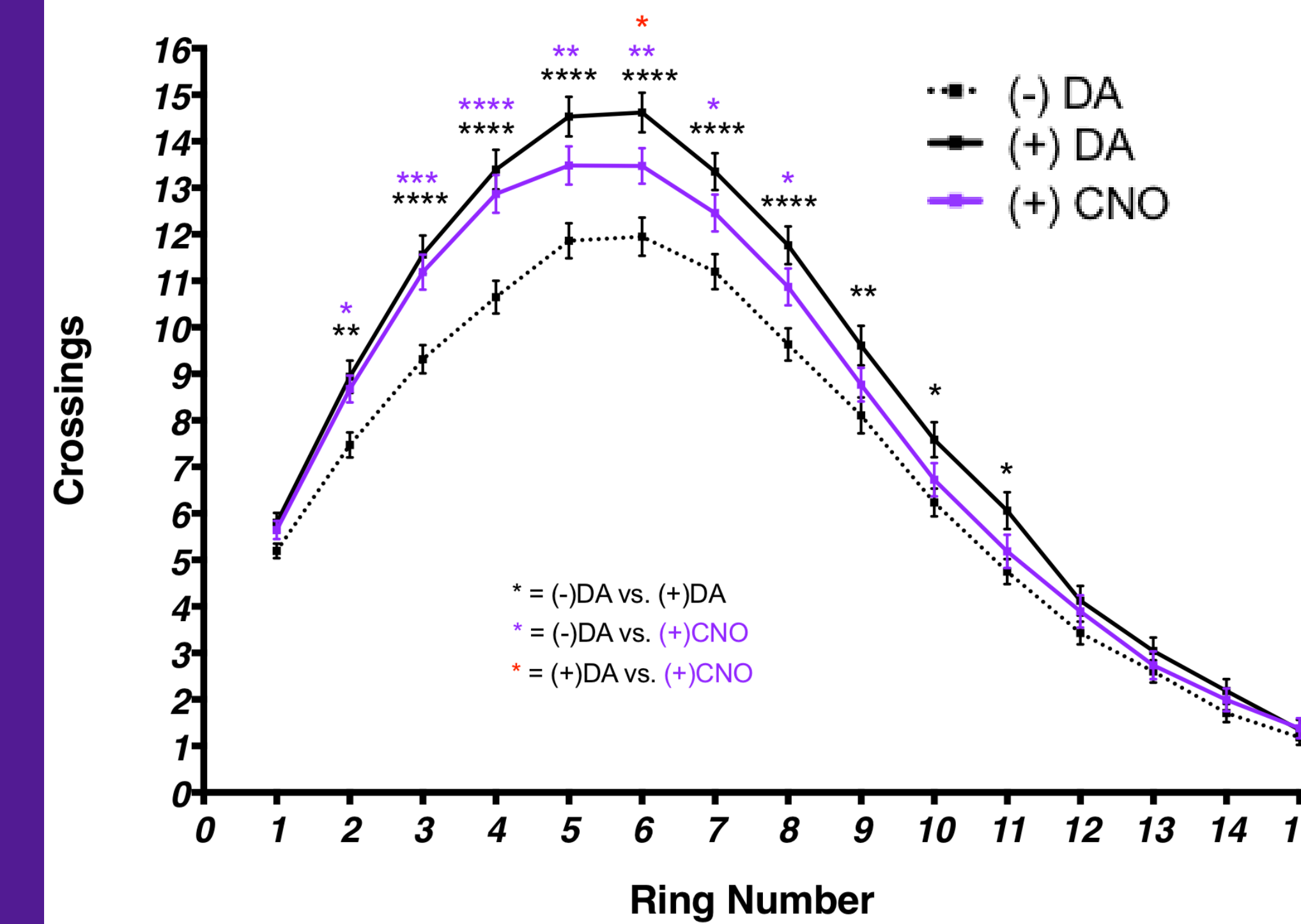


Fig. 2. G_q activation by adding 12.5 nM Clozapine N-oxide to DREADDs expressing MSNs replicates the effects of DA, however, additional controls are necessary to ensure CNO is not being converted to clozapine *in vitro* (Gomez et al., 2017).

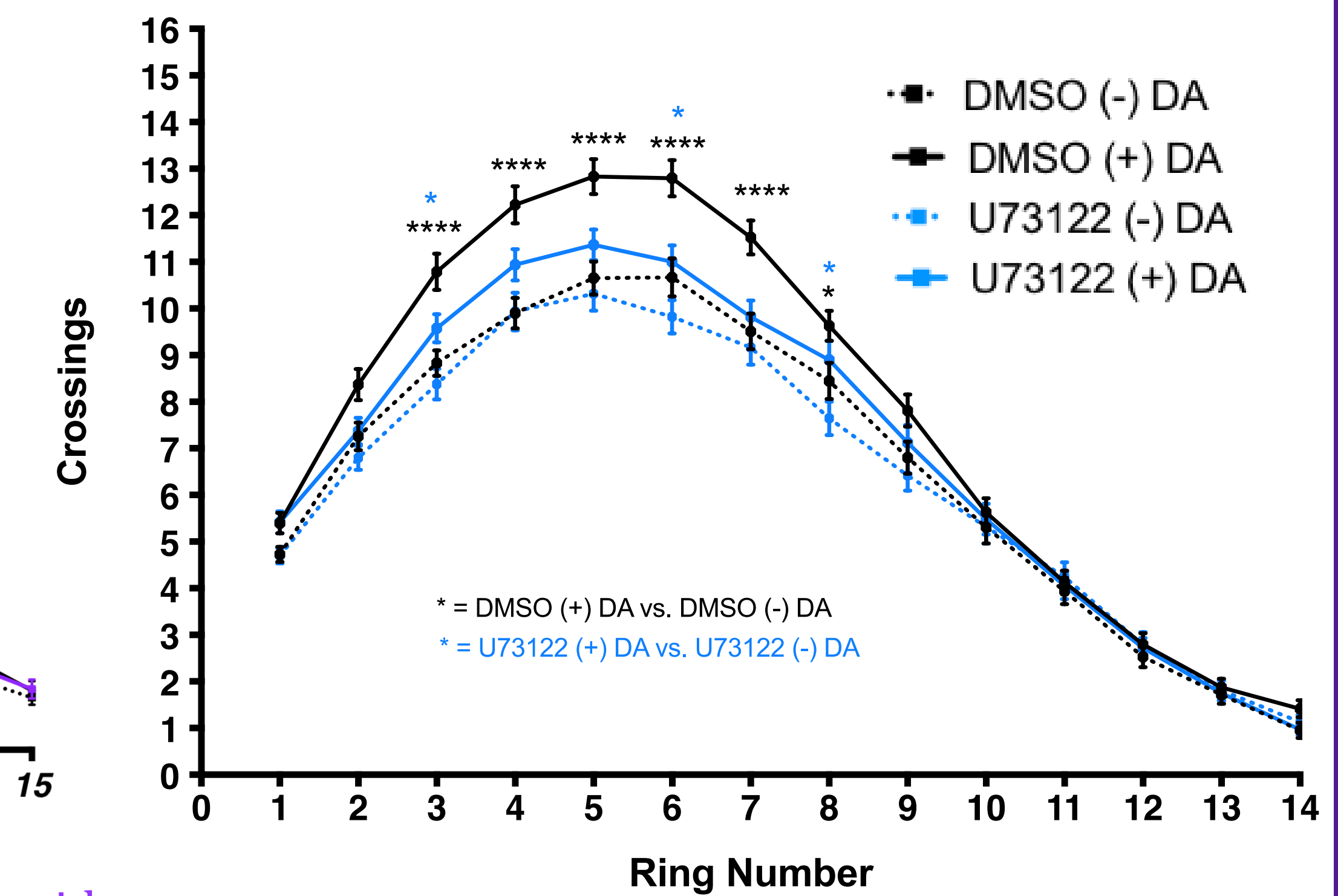


Fig. 3. 100 nM PLC antagonist U73122 doesn't impact branching. U73122(+)+DA effectively blocks DA's effects

