Model Expression glucorticoid repectors

CORTICOSTEROID PHARMACOGENOMICS **∏increased transcription** rotein binding decreased transcription diffusion Cytosol activation phosphorylation translocation dimerization **Nucleus** degradation **Target DNA** transcription transcription transcription transcription transcription mRNA BS mRNA **GR mRNA Enhanced mRNA** Inhibited mRNA translocation translocation translocation translocation translocation mRNA Enhanced mRNA BS mRNA GR mRNA Inhibited mRNA translation translation degradation degradation degradation degradation BS degradation degradation

Figure 1: image

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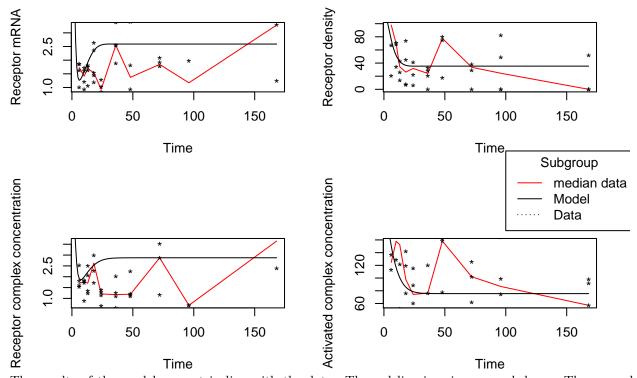
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Introduction

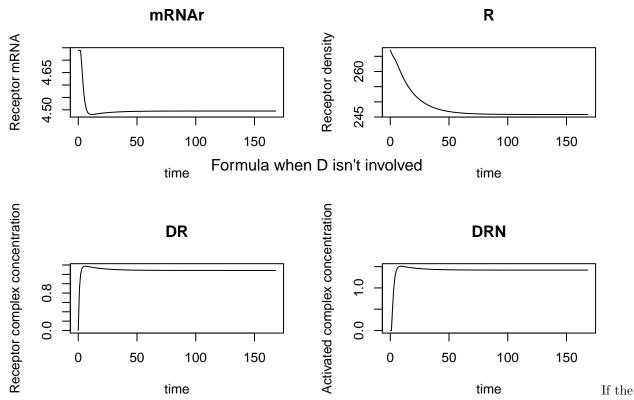
Materials & Methods

Results

Model VS actual data

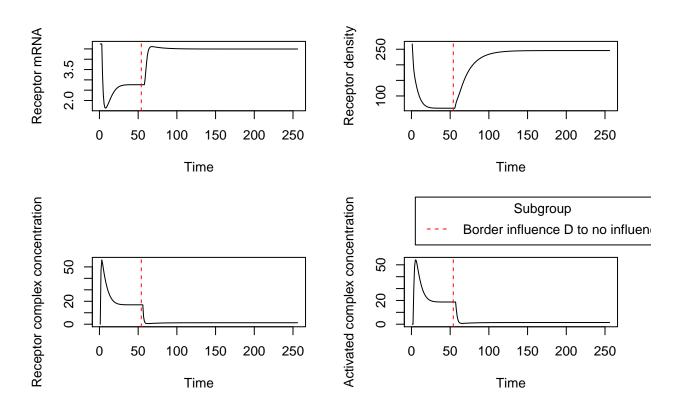


The results of the model are not in line with the data. The red line is going up and down. The general shape kind of follows the model though. An explanation for this could be that the glucose level in someone's body is constantly changing. Which could result in the lines shaking due to the glucose levels that are shaking too.



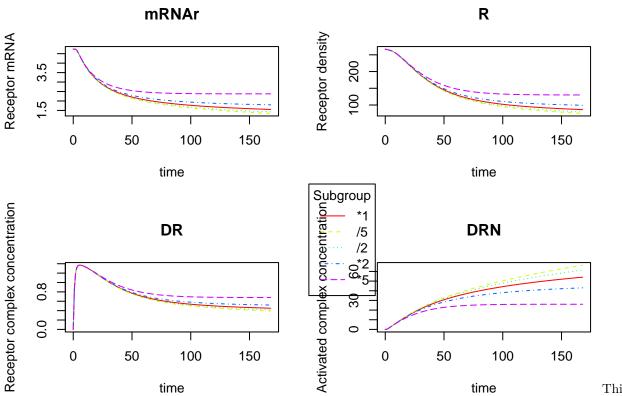
drug has no influence on the synthesis of mRNA this would be expected. The main differences are that the levels of the Receptor mRNA and the receptor density are now higher, and the Receptor complex concentration and the Activated complex concentration are now lower.

Formula to formula when D has no influence



This plot shows the normal process until the steady state is reached. When it's reached the formula will run with the end worths. Except for the D that will now be 0. The formula will run from there until a new steady state is reached.

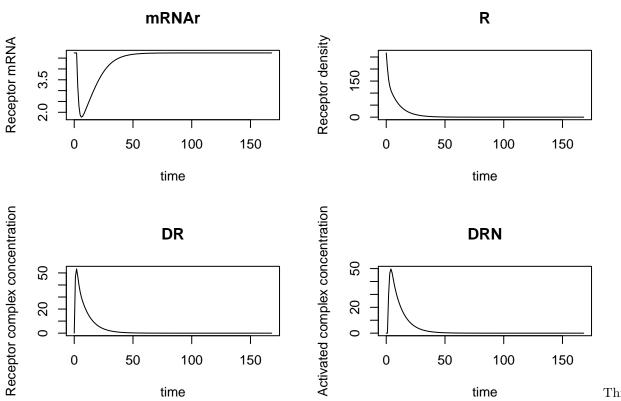
Warning in par(xpd = xpd): NAs introduced by coercion



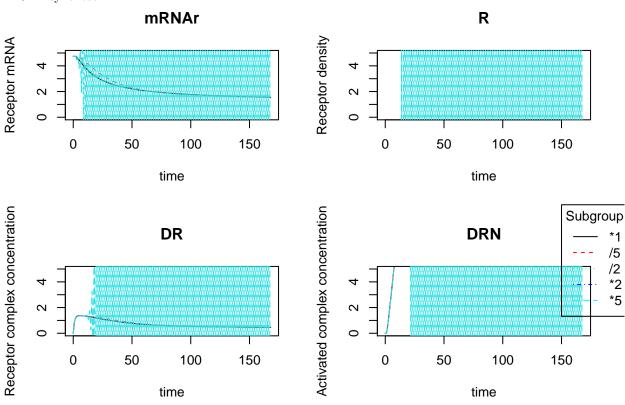
plot shows the change of results whenever the kre variable changes. The receptor mRNA, Receptor density and the Receptor complex concentration will lower more slowly whenever the value is higher. The Activated complex concentration however lowers faster the higher the value is.

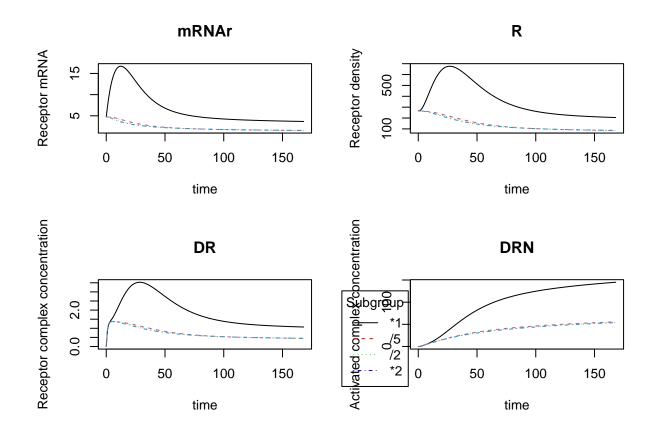
Formula when kre parameter is changed mRNAr R Receptor density Receptor mRNA ∞ -1.5e+44 0 50 100 50 100 0 150 150 time time Activated complex concentration of the second concentratio Receptor complex concentration DR DRN -5.0e+42 50 0 100 150 50 100 150 time time *5 Formula when kre parameter is changed mRNAr R Receptor mRNA Receptor density 200 50 100 150 0 50 100 150 0 time time Receptor complex concentration DR DRN 20 20 150 0 50 100 0 50 100 150 time time

Formula when ks_r is 0



plot shows the model with the ks_r parameter being 0. This prameter is the speed constant of the GR mRNA synthese.





Discussion