

# How to run it and what to expect

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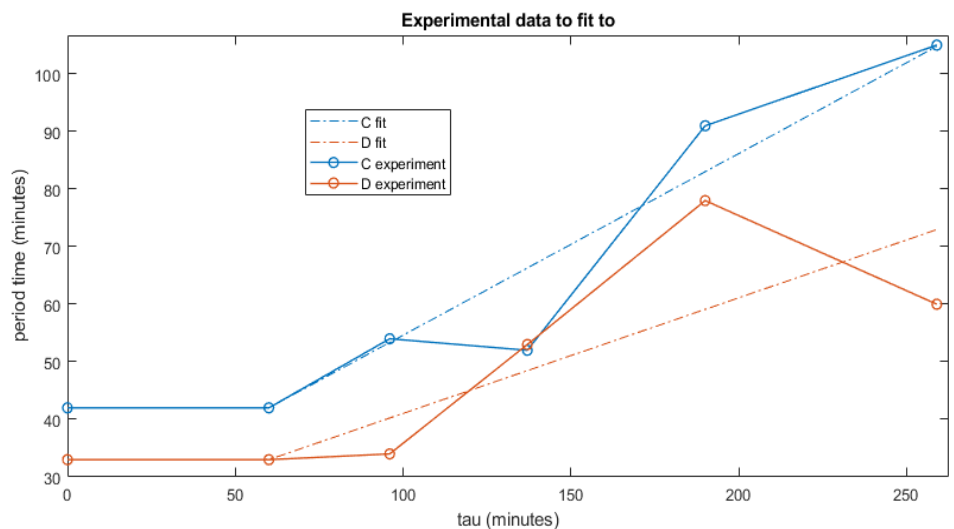
## How to run the code:

To run this code just follow the inputs of the function as explained in the "Genome calculator" tab along with selecting your gene's name in **gene\_name** and telling the code if you wish to output figures as well with **show\_fig**. The C and D period can be estimated, so they don't have to be given. However note that this is an estimation for K-12 MG1655 from Michelsen, et al., "Precise determinations of C and D periods by flow cytometry in Escherichia coli K-12 and B/r". Microbiology (2003):

The fit performed here was to simple function which transitions from a horizontal to a slope:

$$y = \log_b(1 + b^{c(x-d)}) + a$$

- a determines the height of the horizontal line (C fit: a = 42, D fit: a = 33)
- b determines the smoothness of the transition (set to 100 for both, which makes a sharp transition)
- c determines the asymptotic slope (C fit: c = .316, D fit: .201)
- d determines the point of transition (set to tau = 60 for both)



## What to expect as outputs:

For outputs, there will be 2 vectors and a scalar returned by the function. **geno** will hold genome copy number vs. the requested time points, **gene** will hold gene copy number vs. the requested time points, and **gene\_time** will give the time from birth that the gene replicates.

If **show\_fig** is true, then the following figures will be outputted:

