# **Task 4: Writing your data descriptor in Google Docs + Zotero**

**Open Science**

According to Zee and Reich it is a set of practices that increase the transparency and accessibility of scientific research.1 open science is also very important in this digital age where the research depends heavily on computer coding and calculations.2 Discussed below is one of the projects of open science, OpenWorm.

**OpenWorm**

OpenWorm has created the world’s first virtual organism, C.elegans aka Caenorhabditis elegans, in silico and it is entirely an open source project.3 The main goal of this project is to replicate all the 959 cells of C.elegans including the 302 neurons. When simulated inputs are delivered to the nervous system, the virtual worm performs a highly realistic worm-like motion.4 The only organism at this stage that has its connectome diagram mapped is C. elegans.5 As of now new tools are being developed which in the future will make it easier to model more complex organisms.

**Why C.elegans**

C. elegans, is a free-living, transparent nematode of about 1 mm in length, that lives in temperate soil environments. What makes this roundworm so interesting is that the adult hermaphrodite has a total of only 302 neurons. Those 302 neurons belong to two distinct and independent nervous systems: the largest being a somatic nervous system of 282 neurons and a smaller one being a pharyngeal nervous system of just 20 neurons. This makes C. elegans a great starting ground for those studying the nervous system as all 7,000 connections, or synapses, between those neurons have been mapped.6

**Bibliography**

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5. Szigeti, B. *et al.* OpenWorm: an open-science approach to modeling Caenorhabditis elegans. *Front. Comput. Neurosci.* **8**, (2014).

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