

Key process for cell division revealed in molecular analysis

June 1 2017

Researchers have discovered important details of a vital process that enables cells to divide correctly into two.

Their findings shed light on the [molecular processes](#) that determine how and when key proteins combine, to help create a site required for accurate DNA separation over generations.

Researchers from the University of Edinburgh used biophysical and cell biology techniques to better understand the assembly of a key set of proteins known as Mis18.

Their study offers insights as to how the Mis18 protein complex controls the accumulation of another protein, known as CENP-A.

The CENP-A collects at a site where the dividing cell's DNA - which is packaged into a pair of chromosomes - connects and then divides into two [cells](#).

By studying the molecular mass of the constituent Mis18 proteins as they combined, researchers were able to determine how many proteins of each type assembled to form a functional Mis18 complex.

They also found how a further [protein](#), known as Cdk1, controls the timing of Mis18 assembly, by temporarily modifying one of the proteins involved to prevent it from binding the others.

The study, funded by the Wellcome Trust, was published in *EMBO reports*.

Dr Jeyaprakash Arulanandam, of the University of Edinburgh's School of Biological Sciences, who led the study, said: "These findings provide valuable insights into how cells help preserve the site essential for equal distribution of their DNA when they divide, and how the timing of this process is tied to the cell cycle."

Provided by University of Edinburgh

Citation: Key process for cell division revealed in molecular analysis (2017, June 1) retrieved 24 April 2024 from <https://phys.org/news/2017-06-key-cell-division-revealed-molecular.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.