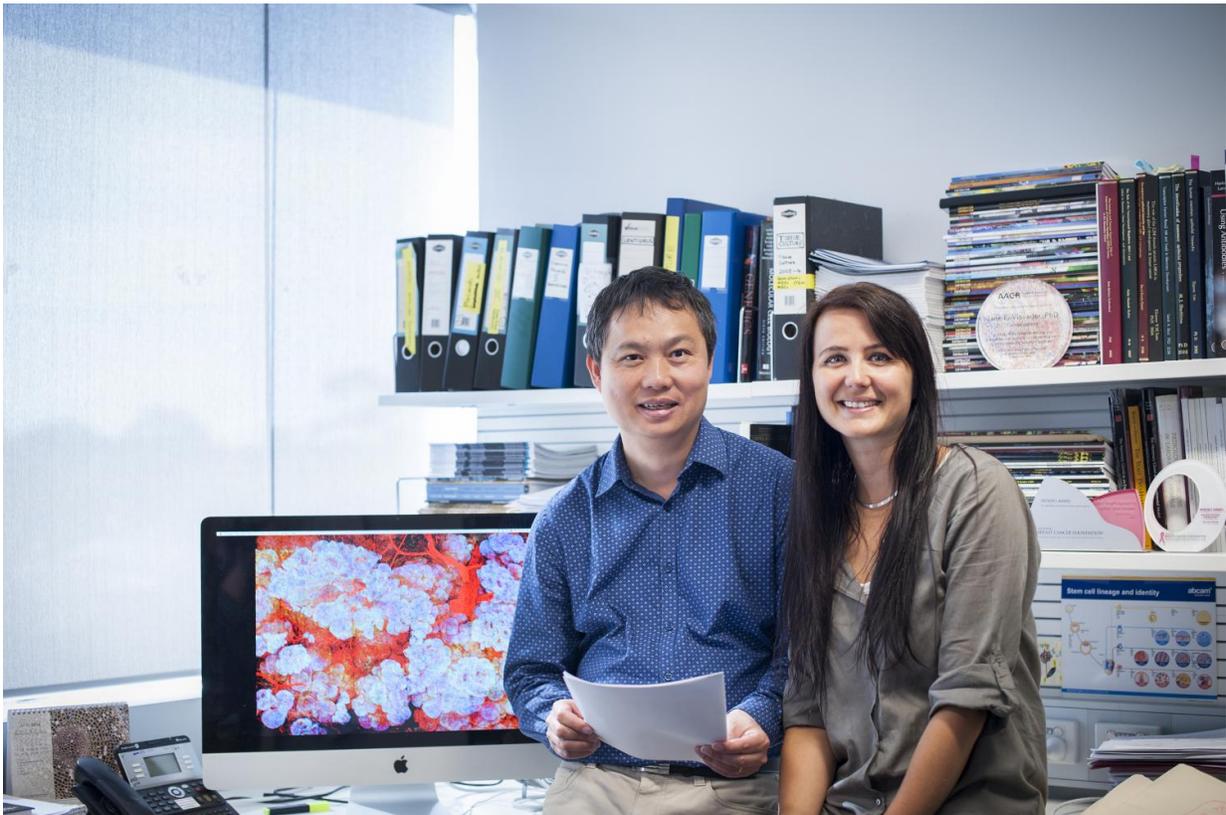


# Research reveals a new secret to the miracle of breast milk

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Dr. Nai Yang Fu and Dr. Anne Rios from the Walter and Eliza Hall Institute of Medical Research. Credit: The Walter and Eliza Hall Institute of Medical Research

One of the secrets to rich milk production in lactation has been uncovered by researchers at the Walter and Eliza Hall Institute. Their

studies have revealed that breast cells develop two nuclei as the breast switches on lactation to nurture the newborn.

This change begins to occur in late pregnancy with the generation of vast numbers of [cells](#) with two nuclei.

The research was led by Professor Jane Visvader, Professor Geoff Lindeman, Dr Anne Rios and Dr Nai Yang Fu, from the institute's ACRF Stem Cells and Cancer Division, and shows that these cells with two nuclei disappear at the cessation of [lactation](#), when [breast cells](#) return to a single nucleus state. It is published today in the journal *Nature Communications*.

Using unique 3-D imaging technology Dr Rios and Dr Fu found huge numbers of cells became binucleated - developed a second nucleus - a process that is critical to milk production.

Professor Visvader said the process - which lasts only for the duration of lactation - was important for the newborn to thrive when [breast](#) milk was the sole nutrient.

"We know that these cells are milk-producing factories," Professor Visvader said. "What is interesting to find is they change according to a very tightly regulated regime - they develop two nuclei, not three or four and then return to one nucleus after lactation. Presumably this is important to avoid mishaps."

Institute co-researcher Professor Lindeman said the research showed how mammals, including humans, wallabies and seals, were primed to adapt to pregnancy in ways that best supported the survival of their babies.

"Based on their presence in five different species, these findings suggest

that this process has evolved in mammals as a mechanism to maximise [milk](#) production, which is essential for nourishing the newborn and the survival of mammalian species," he said.

Provided by Walter and Eliza Hall Institute

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