



# Cited!

Dr. Juan Carlos Zúñiga-Pflücker

In 2002, Dr. Juan Carlos Zúñiga-Pflücker published a paper in *Immunity* detailing a method for creating T cells—white blood cells that rid the body of viruses, bacteria and tumour cells—in a Petri dish. The method was simple, effective and cheap, and it revolutionized the study of T cell development worldwide. In the short six years since its publication, the paper—“Induction of T cell development from hematopoietic progenitor cells by Delta-like-1 in vitro”—has been cited 300 times in peer-reviewed journals.\*

Combining stem cells with Delta-like-1 molecules and supporting stromal cells, Zúñiga-Pflücker’s system, developed by his then-graduate student Thomas Schmitt, enabled other biologists to examine the process of T cell development, which had bedeviled them for years, in unparalleled detail. More than 550 labs are now using the cells in new experiments.

“Most highly cited papers are either fundamental discoveries that generate a lot of controversial discussion, or methods papers that are highly applicable to multiple scientific approaches,” says Zúñiga-Pflücker. “This finding falls into the latter category, as something people can use. It’s efficient and practical and, as time goes by, more accepted as a way to study T cell development.”

Six years on, the alternatives to Zúñiga-Pflücker’s system are either in vivo study (that is, within a living organism), which is complicated and expensive, or in vitro approaches that require an entire thymus, the organ to which bone marrow stem cells migrate to become mature T cells. Both methods are limited in flexibility, and produce far fewer T cells and rudimentary molecular results.

Although wary of the flip side of producing a crucial methods paper—he has become very associated with his breakthrough and sometimes feels pigeonholed to the role of disseminating it—Zúñiga-Pflücker is delighted by the growing acceptance of his work. “What’s surprised me is that people outside the field of T cell development are now able to drop this cell system into their labs and ask questions previously outside their repertoire,” he says. ■

\* Google Scholar, October 26, 2008.

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