



A schematic of the Longwood campus of Harvard Medical School shows the mean number of publication citations originating from each building (height), and the proportion of publications in each building where first and last authors work (grey is low, blue is high). Statistically, bluer buildings are also higher.

BIBLIOMETRICS

Love thy lab neighbour

Getting closer to your collaborators boosts a paper's citations.

BY RICHARD VAN NOORDEN

Anyone who has worked in a laboratory probably feels that having key members of the group placed closer together makes for a better research project. A study linking the proximity of investigators and the impact of their research now backs up that hunch.

Isaac Kohane, co-director of the Harvard Medical School Center for Biomedical Informatics in Boston, Massachusetts, decided to put intuition to the test in 2005 after a debate with Harvard's dean of administration, Richard Mills, over the layout of the centre. "I felt this viscerally, but there was no hard evidence," says Kohane. He enlisted more than a dozen undergraduates to identify 35,000 articles published between 1999 and 2003 in biomedical sciences, each with at least one Harvard author. It took the team two years to pinpoint where individual Harvard investigators were working — right down to the level of individual offices and laboratories.

The results, published in *PLoS ONE* last week (K. Lee *et al.* *PLoS ONE* 5, e14279; 2010),

show that the shorter the geographical distance between first and last authors on a paper, the more highly cited were their research papers. First authors often bear the brunt of the work, whereas last authors tend to take the lead organizational role — and both are key players in the research project. The distance trend was not found for middle authors, who could be far removed from other collaborators without any clear effect on research impact.

Kohane and his colleagues also looked at individual buildings on the four campuses across which Harvard life-science research happens to be spread. They found that the more that researchers within a building tended to collaborate with one another rather than with people elsewhere, the more highly cited the publications that came from that building (see picture). The team does acknowledge an alternative explanation for the data: that scientists might choose to keep

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potentially high-impact breakthroughs within their own laboratory, or within a close circle of researchers.

This seems to be the first empirical study of the connection between proximity and impact, says Anthony van Raan, an expert in using citation analyses to study scientific productivity and impact at Leiden University, the Netherlands. Most studies of the relationship between spatial separation and scientific impact have been done on a national and international scale, for which it has been demonstrated many times that international collaborations produce more highly cited science than local collaborations — probably a consequence of the size and scope of such efforts.

Kohane speculates that international collaborations might become even more successful if the first and last authors worked very close together, something that has not yet been tested. He certainly practises what he preaches: he and first author Kyungjoon (Joon) Lee, who coordinated the undergraduates' fact-finding, now work on the same floor. "When the study started we were on different floors," says Kohane, "and Joon told me that I became a lot more helpful when I moved to his floor." ■