

Lost in translation

Although many others have praised the film *Lost in Translation*, I was less than impressed. I did see it on a long flight, which might have made me less predisposed to the film than if had I seen it in a cinema or at home on a Saturday night. But regardless of the setting, the film failed to fulfil my expectations—just as other aspects of translation do not live up to their promises. I am, of course, referring to the scientific version of translation from basic research to product, from discovery to cure, from bench to bedside, or whatever phrase is presently *en vogue* to describe technology transfer.

There was a time when academic research institutes and universities could labour on their own, without the need for such an activity. But this has changed and today a whole industry is based on technology transfer from academic research to business. The initial aim was to link public research with industry for their mutual benefit. This helped to build bridges between what were then two different cultures of research—another meaning of translation—and to put some extra money into academic coffers. But times have changed, and so has the interface between the experimentalist who is trying to understand life and the salesperson who wants to market the results of that hard graft. When talking to colleagues around the world, I often hear the same criticisms about the now ubiquitous technology-transfer office: instead of facilitating the transfer of knowledge and technology, the complaint goes, these offices tend to block it.

A principal problem with industrial liaison officers (ILOs) is that they usually err on the side of caution. They draft material-transfer agreements (MTAs) in restrictive and cautious language, and pick over any MTA sent to them with a fine-tooth comb. This not only affects the exchange between academic scientists and interested business partners but also controls material transfer

between academic scientists. When a colleague recently asked American academic researchers to provide a cDNA construct that was described in a publication, they went through four iterations of the MTA before the university's Technology Transfer Office in the USA were satisfied with its content. Often, no agreement can be reached and, ultimately, no material is transferred. If scientists can no longer simply give away, under reasonable conditions, an antibody, cell line or plasmid construct that a colleague requests, this seriously hampers research for both biotechnology companies and universities.

The other problem with technology-transfer offices is that they often demand an exaggerated share of potential products. If an ILO pushes the terms for the exploitation of an as-yet-undiscovered product to the upper limit of benefit for the research institution, businesses might respond by just shrugging and walking away. Indeed, what I hear from contacts in industry is that they have grown so fed up with dealing with ILOs that they do not bother anymore unless it is a real necessity. A more reasonable attitude—that gives industry its fair share—would bring in more money to employ another student, buy consumables or travel to a conference, but technology-transfer offices frequently sacrifice this in favour of seeking maximum returns for the university. Does the ILO suffer from squandering these opportunities? Not usually. Legally, they have made no mistake, and sins of omission are more easily forgiven than are the consequences of bad judgement.

Of course, there is a need for ILOs to protect the rights of universities and research institutes, but many could be more proactive in seeking out marketable science. They should scour the laboratories, looking for research gems to polish and sell. They should blend individual research into combinations that involve

different research groups in the same institute. They should recognize real business opportunities to create spin-offs or to add value to the various cries of "Eureka!" that ring through the laboratories. But, too often, they are reluctant to intrude in such a way. This must change because the task of the ILOs is too important to be performed half-heartedly.

Today, research is mostly funded under the presumption that it is 'useful' for the economic future of the country. Governments do not have the luxury of investing only in creating knowledge *per se*—they invest because they expect that more knowledge will attract or create new industries and jobs. This is good news for us, as we are better funded and can move faster to obtain insights into our subject of research. And we do this under a social contract—sometimes in writing—that expects us to produce something useful along the way. But scientists are not trained to make the step from insight to product or service and, indeed, it is not our task: it is here that the baton is handed to the ILO. If they fail, financial opportunities are not the only things we lose—if they fail repeatedly, they undermine the future funding of research for everyone because they block the transformation of research into the new products that society expects us to deliver.

Technology transfer has the power to make good use of research and to bring additional funding to academia. So we must be as demanding of the technology-transfer office as we are of our own research team. We cannot tolerate delays or ineffectiveness. We have to take a more active role to ensure that our institutes make the most of technology transfer. Our work, and what might come out of it, is too expensive and too important to be lost in translation.

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doi:10.1038/sj.embor.7400283