

**A RESOLUTION OF THE DUKE STUDENT GOVERNMENT**  
*Concerning the University's Technology Transfer Policies*

**Policy Statement**

The Duke Student Government calls on the Administration and the Office of Licensing and Ventures to make Duke University a signatory to and active supporter of the technology transfer recommendations released by a consortium of peer institutions and the Association of American Medical Colleges (AAMC) on March 6, 2007 [see Appendix 1]. Furthermore, we call on the University to take a leading role in conversations with its peer institutions regarding patenting and licensing practices.

**Rationale**

On March 6, 2007, a number of Duke's peer institutions, including Harvard, Yale, Stanford, MIT, Cornell, and Cal Tech, joined the AAMC in releasing a set of recommendations regarding patenting and licensing, which seek to maximize the extent to which universities can share proprietary technology and put their inventions to work "in the public interest and for society's benefit." The specific recommendations listed are:

1. Universities should reserve the right to practice licensed inventions and to allow other non-profit and governmental organizations to do so.
2. Exclusive licenses should be structured in a manner that encourages technology development and use.
3. Strive to minimize the licensing of "future improvements"
4. Universities should anticipate and help to manage technology transfer related conflicts of interest
5. Ensure broad access to research tools.
6. Enforcement action should be carefully considered.
7. Be mindful of export regulations.
8. Be mindful of the implications of working with patent aggregators.
9. Consider including provisions that address unmet needs, such as those of neglected patient populations or geographic areas, giving particular attention to improved therapeutics, diagnostics and agricultural technologies for the developing world.

Technology transfer and patenting/licensing issues are integral to Duke's strategic plan and an essential part of the continued ability of the University to render "knowledge in the service of society." Particularly, as Duke becomes a key figure in the world of Global Health, it is imperative that the University's technology transfer practices permit adequate access to essential technologies and research inputs.

One need look no further than disagreements over proprietary AIDS medications in Africa to see how patenting and licensing issues can befuddle attempts to develop and deliver treatments to those who need them most. A recent *Chronicle* guest column by a number of campus organizations (Universities Allied for Essential Medicines [UAEM], Global Health Working Group, Human Rights Working Group, and Duke Organizing) spoke to the need of adopting practices that will allow the University to put its treatments to work in the world [Appendix 2]. The ninth point speaks explicitly to this situation, recognizing that technology transfer offices must make provisions that allow the sharing of inventions with developing parts of the world.

The other recommendations are designed primarily to prevent onerous licensing practices from preventing the dissemination of University inventions, many of which are essential inputs into research at other institutions. Overly restrictive licensing practices by the University could stifle such research and delay scientific discovery while legal agreements are haggled over. By adopting these recommendations, Duke will ensure that its inventions maintain their scientific and commercial value, while providing broad access for non-profit researchers.

The recommendations listed above represent the collective “best practices” of top American research institutions. Duke should be quick to join this club and commit to upholding these principles and using our technology transfer operation to truly put knowledge to work in the service of society.

Respectfully submitted,

Joe Fore  
Executive Vice President

Vijay Brihmadേശam  
Student Services Director

\*Approved

**EMBARGOED UNTIL 3/6/07, 2 P.M. PACIFIC TIME**

**In the Public Interest:  
Nine Points to Consider in Licensing University Technology**

Licensing approaches, even for comparable technologies, can vary considerably from case to case and from institution to institution based on circumstances particular to each specific invention, business opportunity, licensee and university. In spite of this uniqueness, universities share certain core values that can and should be maintained to the fullest extent possible in all technology transfer agreements.

In the summer of 2006, Stanford University's then Dean of Research Arthur Bienenstock convened a small meeting of research officers, licensing directors and a representative from the Association of American Medical Colleges to brainstorm about important societal, policy, legislative and other issues in university technology transfer. Representatives of the participating institutions, listed below, have tried to capture in this document certain shared perspectives that emerged from that meeting. Recognizing that each license is subject to unique influences that render 'cookie-cutter' solutions insufficient, it is our aim in releasing this paper to encourage our colleagues in the academic technology transfer profession to analyze each licensing opportunity individually in a manner that reflects the business needs and values of their institution, but at the same time, to the extent appropriate, also to bear in mind the concepts articulated herein when crafting agreements with industry. We recognize that many of these points are already being practiced. In the end, we hope to foster thoughtful approaches and encourage creative solutions to complex problems that may arise when universities license technologies in the public interest and for society's benefit.

California Institute of Technology  
Cornell University  
Harvard University  
Massachusetts Institute of Technology  
Stanford University  
University of California  
University of Illinois, Chicago  
University of Illinois, Urbana-Champaign  
University of Washington  
Wisconsin Alumni Research Foundation  
Yale University  
and  
Association of American Medical Colleges (AAMC)

### **Point 1**

#### **Universities should reserve the right to practice licensed inventions and to allow other non-profit and governmental organizations to do so**

In the spirit of preserving the ability of all universities to perform research, ensuring that researchers are able to publish the results of their research in dissertations and peer-reviewed journals and that other scholars are able to verify published results without concern for patents, universities should consider reserving rights in all fields of use, even if the invention is licensed exclusively to a commercial entity, for themselves and other non-profit and governmental organizations:

- to practice inventions and to use associated information and data for research and educational purposes, including research sponsored by commercial entities; and
- to transfer tangible research materials (e.g., biological materials and chemical compounds) and intangible materials (e.g., computer software, databases and know-how) to others in the non-profit and governmental sectors.

Clear articulation of the scope of reserved rights is critical. Recent examples of such “retained rights” clauses are included in the Appendix for reference.

### **Point 2**

#### **Exclusive licenses should be structured in a manner that encourages technology development and use**

When significant investment of time and resources in a technology are needed in order to achieve its broad implementation, an exclusive license often is necessary and appropriate. However, it is important that technology transfer offices be aware of the potential impact that the exclusive license might have on further research, unanticipated uses, future commercialization efforts and markets. Universities need to be mindful of the impact of granting overly broad exclusive rights and should strive to grant just those rights necessary to encourage development of the technology.

Special consideration should be given to the impact of an exclusive license on uses of a technology that may not be appreciated at the time of initial licensing. A license grant that encompasses all fields of use for the life of the licensed patent(s) may have negative consequences if the subject technology is found to have unanticipated utility. This possibility is particularly troublesome if the licensee is not able or willing to develop the technology in fields outside of its core business. Universities are encouraged to use approaches that balance a licensee’s legitimate commercial needs against the university’s goal (based on its educational and charitable mission and the public interest) of ensuring broad practical application of the fruits of its research programs. There are many alternatives to strict exclusive licensing, several of which are described in the Appendix.

In situations where an exclusive license is warranted, it is important that licensees commit to diligently develop the technology to protect against a licensee that is unable or unwilling to move an innovation forward. In long-term exclusive licenses, diligent development should be well-defined and regularly monitored during the exclusive term of the agreement and should promote the development and broad dissemination of the licensed technology. Ideally, objective, time-limited performance milestones are set, with termination or non-exclusivity (subject to limited, but reasonable, cure provisions) as the penalty for breach of the diligence obligation. Examples of diligence requirements (also known as performance milestones) are described in the Appendix.

Another means of ensuring diligent development, often used in conjunction with milestones, is to require exclusive licensees to grant sublicenses to third parties to address unmet market or public health needs (“mandatory sublicensing”) and/or to diligently commercialize new applications of the licensed rights. Such a requirement could also be implemented through a reserved right of the licensor to grant direct licenses within the scope of the exclusive grant to third parties based on unmet need. In such situations, it is important to ensure that the parties have a common understanding of what constitutes a new application or unmet need for the purpose of implementing such a provision. An example of mandatory sublicensing language is provided in the Appendix.

Absent the need for a significant investment - such as to optimize a technology for wide use - broad, non-exclusive licensing of tools such as genomic and proteomic inventions can help maximize the benefits derived from those technologies, in part by removing obstacles to further innovation. Unlike most research tools or manufacturing methods, diagnostic tests often must go through the regulatory approval process, and so may warrant exclusive licensing when the costs of test development, approval or diffusion require substantial investment of capital. Nevertheless, licensing of diagnostic tests based on broadly applicable genomics or proteomics methods should strive to preserve sufficient flexibility to permit testing for multiple indications (i.e., not an exclusive licensee’s single disease of interest) perhaps through multiple field-restricted or non-exclusive licenses. Exclusive licensing of a single gene for a diagnostic may be counterproductive in a multi-gene pathology where only a panel of genes can yield an adequate diagnosis, unless the licensee has access to the other genes of the panel. Such licenses can also be limited in other ways. For example, a university might license a genomics method exclusively for a company to optimize and sell licensed products for diagnostic use. The drafting of the exclusive grant could make it clear that the license is exclusive for the sale, but not use, of such products; in doing so, the university ensures that it is free to license non-exclusively to others the right (or may simply not assert its rights) to use the patented technology, which they may do either using products purchased from the exclusive licensee or those that they make in-house for their own use.

In general, when no alternative testing strategy is available for a given indication, consideration should be given to means of ensuring reasonable access for patients and shielding individual healthcare providers from the risk of suit for patent infringement. As with any medical technology, licenses should not hinder clinical research, professional

education and training, use by public health authorities, independent validation of test results or quality verification and/or control.

**Point 3**  
**Strive to minimize the licensing of “future improvements”**

Although licensees often seek guaranteed access to future improvements on licensed inventions, the obligation of such future inventions may effectively enslave a faculty member’s research program to the company, thereby exerting a chilling effect on their ability to receive corporate and other research funding and to engage in productive collaborations with scientists employed by companies other than the licensee – perhaps even to collaborate with other academic scientists. In particular, if such future rights reach to inventions made elsewhere in the university, researchers who did not benefit from the licensing of the original invention may have their opportunities restricted as well, and may be disadvantaged economically relative to the original inventors if the licensing office has pre-committed their inventions to a licensee.

For these reasons, exclusive licensees should not automatically receive rights to “improvement” or “follow-on” inventions. Instead, as a matter of course, licensed rights should be limited to existing patent applications and patents, and only to those claims in any continuing patent applications that are (i) fully supported by information in an identified, existing patent application or patent and (ii) entitled to the priority date of that application or patent.

In the rare case where a licensee is granted rights to improvement patents, it is critical to limit the scope of the grant so that it does not impact uninvolved researchers and does not extend indefinitely into the future. It is important to further restrict the grant of improvements to inventions that are owned and controlled by the licensor institution - i.e., (i) not made by the inventor at another institution, should they move on or (ii) co-owned with, or controlled by, another party. One refinement to this strategy would be to limit the license to inventions that are dominated by the original licensed patents, as these could not be meaningfully licensed to a third party, at least within the first licensee’s exclusive field. As was discussed earlier, appropriate field restrictions enable the licensing not only of the background technology, but also of improvements, to third parties for use outside the initial licensee’s core business. In all cases, a license to improvements should be subject to appropriate diligent development requirements.

It should be recognized, however, that not all “improvements” have commercial potential (for example, they may not confer sufficient additional benefit over the existing technology to merit the expense of the development of new or modified products), in which case a licensee might not wish to develop them. In general, it may be best simply not to patent such improvements.

**Point 4**  
**Universities should anticipate and help to manage  
technology transfer related conflicts of interest**

Technology transfer offices should be particularly conscious and sensitive about their roles in the identification, review and management of conflicts of interest, both at the investigator and institutional levels. Licensing to a start-up founded by faculty, student or other university inventors raises the potential for conflicts of interest; these conflicts should be properly reviewed and managed by academic and administrative officers and committees outside of the technology transfer office. A technology licensing professional ideally works in an open and collegial manner with those directly responsible for oversight of conflicts of interest so as to ensure that potential conflicts arising from licensing arrangements are reviewed and managed in a way that reflects well on their university and its community. Ideally, the university has an administrative channel and reporting point whereby potential conflicts can be non-punitively reported and discussed, and through which consistent decisions are made in a timely manner.

**Point 5**  
**Ensure broad access to research tools**

Consistent with the NIH Guidelines on Research Tools, principles set forth by various charitable foundations that sponsor academic research programs and by the mission of the typical university to advance scientific research, universities are expected to make research tools as broadly available as possible. Such an approach is in keeping with the policies of numerous peer-reviewed scientific journals, on which the scientific enterprise depends as much as it does on the receipt of funding: in order to publish research results, scientists must agree to make unique resources (e.g., novel antibodies, cell lines, animal models, chemical compounds) available to others for verification of their published data and conclusions.

Through a blend of field-exclusive and non-exclusive licenses, research tools may be licensed appropriately, depending on the resources needed to develop each particular invention, the licensee's needs and the public good. As suggested with respect to genomics and proteomics method patents in Point 2 above, a university might license a research reagent, kit or device exclusively to a company to optimize and sell licensed products and services for research, diagnostic or other end uses. The drafting of such an exclusive grant should make clear that the license is exclusive for the sale, but not use, of such products and services; in doing so, the university ensures that it is free to license non-exclusively to others the right to use the patented technology, which they may do either using products purchased from the exclusive licensee or those that they make in-house for their own use.

**Point 6**  
**Enforcement action should be carefully considered**

In considering enforcement of their intellectual property, it is important that universities be mindful of their primary mission to use patents to promote technology development for the benefit of society. All efforts should be made to reach a resolution that benefits both sides and promotes the continuing expansion and adoption of new technologies. Litigation is seldom the preferred option for resolving disputes.

However, after serious consideration, if a university still decides to initiate an infringement lawsuit, it should be with a clear, mission-oriented rationale for doing so—one that can be clearly articulated both to its internal constituencies and to the public. Ideally, the university’s decision to litigate is based on factors that closely track the reasons for which universities obtain and license patents in the first place, as set out elsewhere in this paper. Examples might include:

- Contractual or ethical obligation to protect the rights of existing licensees to enjoy the benefits conferred by their licenses; and
- Blatant disregard on the part of the infringer for the university’s legitimate rights in availing itself of patent protection, as evidenced by refusal on the part of the infringer to negotiate with or otherwise entertain a reasonable offer of license terms.

Under all circumstances, it reflects poorly on universities to be involved in “nuisance suits.” Exclusive licensees should be encouraged to approach patent enforcement in a manner that is consistent with the philosophy described in this Point 6.

**Point 7**  
**Be mindful of export regulations**

University technology transfer offices should have a heightened sensitivity about export laws and regulations and how these bodies of law could affect university licensing practices. Licensing “proprietary information” or “confidential information” can affect the “fundamental research exclusion” (enunciated by the various export regulations) enjoyed by most university research, so the use of appropriate language is particularly important. Diligence in ensuring that technology license transactions comply with federal export control laws helps to safeguard the continued ability of technology transfer offices to serve the public interest.

### **Point 8**

#### **Be mindful of the implications of working with patent aggregators**

As is true of patents generally, the majority of university-owned patents are unlicensed. With increasing frequency, university technology transfer offices are approached by parties who wish to acquire rights in such ‘overstock’ in order to commercialize it through further licenses. These patent aggregators typically work under one of two models: the ‘added value’ model and the so-called ‘patent troll’ model.

Under the added value model, the primary licensee assembles a portfolio of patents related to a particular technology. In doing so, they are able to offer secondary licensees a complete package that affords them freedom to operate under patents perhaps obtained from multiple sources. As universities do not normally have the resources to identify and in-license relevant patents of importance, they cannot offer others all of the rights that may control practice (and, consequently, commercialization) of university inventions. By consolidating rights in patents that cover foundational technologies and later improvements, patent aggregators serve an important translational function in the successful development of new technologies and so exert a positive force toward commercialization. For example, aggregation of patents by venture capital groups regularly results in the establishment of corporate entities that focus on the development of new technologies, including those that arise from university research programs. To ensure that the potential benefits of patent aggregation actually are realized, however, license agreements, both primary and secondary, should contain terms (for example, time-limited diligence requirements) that are consistent with the university’s overarching goal of delivering useful products to the public.

In contrast to patent aggregators who add value through technology-appropriate bundling of intellectual property rights, there are also aggregators (the ‘patent trolls’) who acquire rights that cut broadly across one or more technological fields with no real intention of commercializing the technologies. In the extreme case, this kind of aggregator approaches companies with a large bundle of patent rights with the expectation that they license the entire package on the theory that any company that operates in the relevant field(s) must be infringing at least one of the hundreds, or even thousands, of included patents. Daunted by the prospect of committing the human and financial resources needed to perform due diligence sufficient to establish their freedom to operate under each of the bundled patents, many companies in this situation will conclude that they must pay for a license that they may not need. Unlike the original patent owner, who has created the technology and so is reasonably entitled to some economic benefit in recognition for its innovative contribution, the commercial licensee who advances the technology prior to sublicensing, or the added value aggregator who helps overcome legal barriers to product development, the kind of aggregator described in this paragraph typically extracts payments in the absence of any enhancement to the licensed

technology.<sup>1</sup> Without delving more deeply into the very real issues of patent misuse and bad-faith dealing by such aggregators, suffice it to say that universities would better serve the public interest by ensuring appropriate use of their technology by requiring their licensees to operate under a business model that encourages commercialization and does not rely primarily on threats of infringement litigation to generate revenue.

### **Point 9**

#### **Consider including provisions that address unmet needs, such as those of neglected patient populations or geographic areas, giving particular attention to improved therapeutics, diagnostics and agricultural technologies for the developing world**

Universities have a social compact with society. As educational and research institutions, it is our responsibility to generate and transmit knowledge, both to our students and the wider society. We have a specific and central role in helping to advance knowledge in many fields and to manage the deployment of resulting innovations for the public benefit. In no field is the importance of doing so clearer than it is in medicine.

Around the world millions of people are suffering and dying from preventable or curable diseases. The failure to prevent or treat disease has many causes. We have a responsibility to try to alleviate it, including finding a way to share the fruits of what we learn globally, at sustainable and affordable prices, for the benefit of the world's poor. There is an increased awareness that responsible licensing includes consideration of the needs of people in developing countries and members of other underserved populations.

The details involved in any agreement provisions attempting to address this issue are complex and will require expert planning and careful negotiation. The application will vary in different contexts. The principle, however, is simple. Universities should strive to construct licensing arrangements in ways that ensure that these underprivileged populations have low- or no-cost access to adequate quantities of these medical innovations.

We recognize that licensing initiatives cannot solve the problem by themselves. Licensing techniques alone, without significant added funding, can, at most, enhance access to medicines for which there is demand in wealthier countries. Diseases that afflict only the global poor have long suffered from lack of investment in research and development: the prospects of profit do not exist to draw commercial development, and public funding for diseases suffered by those who live far away from nations that can afford it is difficult to obtain and sustain. Through thoughtful management and licensing of intellectual property, however, drugs, therapies, and agricultural technologies developed at universities can at least help to alleviate suffering from disease or

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<sup>1</sup> A somewhat related issue is that of technology 'flipping', wherein a non-aggregator licensee of a university patent engages in sublicensing without having first advanced the technology, thereby increasing product development costs, potentially jeopardizing eventual product release and availability. This problem can be addressed most effectively by building positive incentives into the license agreement for the licensee to advance the licensed technology itself – e.g., design instrumentation, perform hit-to-lead optimization, file an IND. Such an incentive might be to decrease the percentage of sublicense revenues due to the university as the licensee meets specific milestones.

hunger in historically marginalized population groups.

### **Summary**

As often is the case, guidance as to implementation of practices that will advance the mission of university technology transfer lags behind our collective awareness of both the needs that exist and our obligations to foster an environment in which they can effectively be met. While we may generally agree on the commonality of the above challenges, a multiplicity of approaches are possible to address the dual goals of nurturing future research and using the innovations of university research to provide the broadest possible benefit to the public. The participating universities put forth these considerations in an aspirational sense and we encourage all of our colleagues to stretch the boundaries of conventional technology transfer practice and share with the greater technology transfer community the insights that they gain in doing so.

Appendix 2: Chronicle Guest Column

# License to sign

## A wider perspective

**By: UAEM**

**Posted: 4/4/07**

Let's talk about tuberculosis. The first effective therapy for TB, streptomycin, was developed in 1944. Today, TB is a preventable and curable disease, and yet the World Health Organization estimates that it kills up to 5000 people every day. In 2004, 80 percent of the 9 million new TB cases were concentrated in 22 countries, mostly in Africa and Asia.

Or we can talk about HIV/AIDS. The first drug to treat AIDS, AZT (zidovudine), was approved by the FDA in 1987. Since then, a host of antiretroviral agents (ARVs) have significantly improved the survival rate and health outcomes for persons living with HIV in the United States. Yet, in 2006, out of the 39.5 million people living with HIV, 24.7 million of them lived in sub-Saharan Africa, and as of June 2006, a little more than 1.6 million people living with HIV were receiving ARV therapy in low and middle income countries.

You get the point: At the end of a long list of infectious diseases that are preventable, treatable and in many cases curable, there remains a fundamental series of questions that demand intelligent answers. Why are people at this very moment dying of diseases that we are well prepared to treat? Why do global health disparities still exist and whose responsibility is it to eliminate them?

In the age of neoliberalism and free market capitalism, a few answers come to mind. The modern pharmaceutical establishment in the developed world functions as a multi-billion dollar industry that produces many of the life-saving treatments we currently have. However, pharmaceutical research and development is fueled by the ability to generate profits from drugs developed for and sold to wealthy citizens of wealthy nations. Ironically, those who can not afford these medicines are often the ones who need them the most. This has led to devastating inequality in access to life.

For those who believe that health care is a basic human right, restricting access to life-saving medication is unacceptable. Luckily, we as students and faculty at a major American research institution are in a unique position to reject and revolutionize these policies. American universities have long been important in the early stages of the development of life-saving medication. The active ingredients in the drugs that are marketed by pharmaceutical companies are often developed by university-employed scientists. These innovations are then patented and licensed out by the university to

pharmaceutical companies who continue to develop the drugs. Unfortunately, the university is pressured to license these medicines on the financial terms of profit-driven companies that are not rewarded for providing for the poor.

Take, for example, the case of Yale University and the HIV drug d4T or stavudine. D4T was invented by a Yale professor and was originally licensed exclusively to Bristol-Meyers Squibb. In February 2001, Doctors Without Borders requested Yale's permission to use a generic version of d4T in South Africa. Yale initially refused to consider the proposal. However, this position quickly elicited protest from a group of outraged Yale Law School students, who believed that a university's humanitarian goals should outweigh any immediate financial earnings. Under intense student pressure, Yale eventually conceded in negotiating with Bristol-Meyers for emergency patent relief and price cuts on the drug throughout Africa.

More recent advances at universities throughout the country have resulted in the public release of a document entitled "In the Public Interest: Nine Points to Consider in Licensing University Technology." Developed by eleven top U.S. research universities and the Association of American Medical Colleges, the document openly commits to policy changes that would make university inventions more widely available in developing nations.

Unfortunately, our own University is not among the signatories. As one of the top research institutions in the country, Duke has incredible potential to contribute to this ever-growing movement of increased access to essential medicines and health technology. As students and faculty, it is our responsibility to ensure that Duke achieves its humanitarian goals by ensuring global access to its innovations. To do this, we must raise our voice and encourage the University to document publicly its commitment to equitable access licensing around the world. Once we have openly rejected exploitative licensing policies we can begin to consider ourselves a global, humanitarian institution.

This is the third in a series of columns this semester written and supported by members of several campus groups. The goal of the series is to raise awareness and to educate on a select group of issues related to sustainability, human rights and health care with a global perspective. This column's primary author is Universities Allied for Essential Medicines. It is co-signed by the Global Health Working Group, the Human Rights Working Group and Duke Organizing.