



Socially Responsible Licensing Program

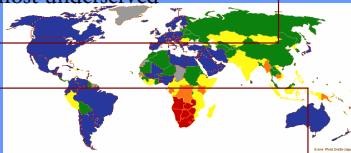
Intellectual Property & Industrial Research Alliances

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Abstract

UC Berkeley is a global leader in education and research. Its Intellectual Property & Industry Research Alliances (IPIRA) division promotes, develops, and deploys innovations to benefit society. IPIRA's Socially Responsible Licensing Program (SRLP) partners with industry, start-ups, and not-for-profit organizations to create new business models that engender investments and solutions for the world. Since 2003, SLRP has set new standards for university research partnerships, including therapies for malaria, tuberculosis drug targets, protein-enhanced sorghum, diagnostics for dengue fever and other infective diseases, novel anti-viral compounds, water purification, and pesticide-free crops. From DuPont/Pioneer to the Gates Foundation, and from indigenous knowledge in Samoa to bioengineered yeast, SLRP-fostered collaborations span the globe and cross disciplines. This poster focuses the contracting and IP management techniques involved in bringing cutting-edge technology to the world's most underserved populations.



Introduction

IPIRA was founded in 2003, to combine IP licensing and industry-sponsored research in one office under a technology "pull" model to maximize the impact of Berkeley's research. The combined unit sought to measure its efforts beyond traditional financial and patent application metrics. Collaborative partnerships that accelerate innovation and catalyze commercial uptake are needed to address global societal needs. SRLP aims to promote the availability of Berkeley inventions, to share attribution and revenue rewards with collaborators and indigenous stewards, and to maximize the social impact and public benefit of Berkeley's discoveries. IPIRA research and IP policies foster paradigm-shifting partnerships and new methods for inducing investments in areas that lack traditional profit drivers. Between professors, researchers, start-ups, not-for-profits, industry, and governments, IPIRA's approach to malaria, sorghum, TB, and anti-viral therapies epitomizes a new approach to translating research into public benefit.

Nutritionally-Fortified Sorghum

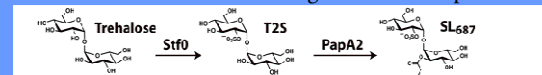


Sorghum is a staple food for over 500 million people, even though it is a particularly poor source of nutrition, protein, and starch. The research of Berkeley professors Bob Buchanan and Peggy G. Lemaux explored enhancing the digestibility of sorghum protein and starch by modifying the expression of sorghum's grain endosperm. Supported by a grant from the Gates Foundation, Berkeley partnered with Africa Harvest and DuPont/Pioneer to develop the technology. The contract involved a paid-up, royalty-free, worldwide perpetual license, with the field of use defined as "any charitable objective." A flexible sales policy facilitates commercial sales where distribution is otherwise unlikely.



A New TB Drug Target

Tuberculosis is the world's top killer of people with HIV and present in perhaps one third of all people, yet novel TB therapies are rare, as TB's burden falls mostly on impoverished populations. Recently, however, Professor Carolyn R. Bertozzi discovered four genes within the *Mycobacterium tuberculosis* genome that may be linked to TB's latent survival. Four patents related to the sulfotransferase pathway were "donated" to the Pool for Open Innovation in 2010, for the express purpose of advancing research on 16 neglected tropical diseases in the Least Developed Countries. Berkeley is the second university to join the pool and the first university to contribute its IP. Licenses to the Berkeley patents are offered under the terms of the Creative Commons GX (Green Exchange) Public License. Potential licensees can inspect both the patent rights offered by Berkeley and the accompanying license, thereby reducing uncertainty and transaction costs, and streamlining commercial uptake.



Innovative Malaria Therapies



Production of the malaria therapy artemisinin is extremely expensive, and cost is a barrier to availability in countries with high burdens. Professor Jay Keasling sought a new approach: engineer *Saccharomyces cerevisiae* to produce it for combination therapies. With funding from the Gates Foundation, Keasling's Berkeley lab carried out the basic gene cloning research. Amyris, a private start-up (founded by Berkeley researchers) continued the strain engineering and fermentation scale-up. Lead grantee, the Institute for One World Health (iOWH), a not-for-profit pharmaceutical company, managed the regulatory and global distribution aspects of the project. Funding from the Foundation enabled basic, translational, and regulatory aspects to be performed in parallel, not sequentially as is the norm (because each entity was funded simultaneously), cutting years off of the typical bench-to-bedside timeline. The product development partnership involved a three-way collaboration agreement and two royalty-free licenses from IPIRA. Starting in December 2004, the three partners de-risked the project by advancing it along the value chain, and in March, 2008 sanofi-aventis sublicensed the rights from each of iOWH and Amyris. This novel combination of "bootstrap philanthropy," IP management, and deployment strategies may serve as a model for deploying additional solutions to urgent needs.

Samoa Anti-Viral Compounds



The Mamala tree contains significant anti-viral properties. Professor Keasling and Berkeley partnered with the Government of Samoa and the Falealupo village to identify and isolate its prostratin genes. Under a research agreement between Berkeley and Samoa, discoveries will be attributed to and named for the Samoan villages that originally identified the tree's therapeutic properties. Additionally, any commercialization revenues will be shared between Berkeley and Samoa, the Falealupo, Saipipi, and eight other villages, and the descendants of two indigenous healers. Berkeley will further endeavor to use best efforts to license any resulting therapies for the public benefit, especially as they relate to HIV/AIDS.