



HEARING TESTIMONY

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ON BEHALF OF THE

BIOTECHNOLOGY INDUSTRY ORGANIZATION

BEFORE THE HOUSE OF REPRESENTATIVES COMMITTEE ON SMALL BUSINESS

*“LEGISLATIVE INITIATIVES TO STRENGTHEN AND MODERNIZE*

*THE SBIR AND STTR PROGRAMS”*

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Good morning Chairwoman Velázquez, Ranking Member Graves, Members of the Committee, ladies and gentleman. I am Scott Koenig, President and Chief Executive Officer of MacroGenics Inc and Chairman of the Board of Applied Genetics Technology Corporation (AGTC). I am appearing before this Committee on behalf of the Biotechnology Industry Organization (BIO). BIO represents more than 1,200 companies, academic institutions, state biotechnology centers and related organizations in all 50 states.

I am a scientist, physician, and entrepreneur and have worked at both the NIH and in the biotechnology industry for the past twenty-five years. During my career I have held positions including Senior Vice President of Research at MedImmune Inc., co-founder and CEO of MacroGenics Inc, and Board member of AGTC. During this time I have been involved in the development of multiple biological products, such as a therapy to prevent a fatal respiratory viral illness in premature infants, a vaccine to prevent cervical cancer, and a number of other promising biological therapeutics still in development such as treatments for juvenile diabetes, West Nile virus infections, and many types of cancer. I have seen the

importance and impact of the SBIR program in the biotechnology industry, not only on fostering the growth of fledgling companies during some of the most challenging times in their business cycles, but in enhancing the advancement of important products to the marketplace. Sadly, from my perspective, current rules have inhibited and interfered with the growth and survival of small private biotechnology companies and the development of promising technologies and products due to the inability of venture-backed companies to participate in the SBIR program. Let me provide an example of each with two quite different outcomes for programs developing vital treatments for children.

In the early 1990's, MedImmune was a small biotechnology company in Gaithersburg, MD, founded in 1988, funded by venture capitalists, which became a publicly-traded company on NASDAQ in 1991. One of the lead programs in the company at the time was a monoclonal antibody to prevent a viral infection called respiratory syncytial virus (RSV) in neonates. The research and development of this program was funded by SBIR Phase 1 and 2 grants. This funding was critical in supporting the company and the research program. Today, this product called Synagis, the first and only FDA-approved monoclonal antibody product to prevent an infectious disease, has been used in over 600,000 children. MedImmune was acquired by AstraZeneca in 2007, one of the largest acquisitions of a biotechnology company by a pharmaceutical company. MedImmune now employs thousands of highly skilled professionals. If current SBIR rules prevailed at that time when MedImmune's scientists first applied for an SBIR grant, MedImmune would have been ineligible to receive those SBIR funds and it would have significantly impacted the development of that program and the company.

Contrast that outcome with AGTC. Today, AGTC is a small private biotechnology company in Alachua, Florida, developing cutting-edge product candidates to treat and cure different genetic diseases using adeno-associated viral (AAV) vectors produced from their propriety manufacturing process. The company, by all parameters, is small. They have seven employees (recently downsized from 13 because of financial circumstances), rent space in a university subsidized lab, have no product revenues, and have large capital requirements to advance their programs through early stages of pre-clinical and clinical development. They have raised \$37M from venture capitalists to date and because of their capital structure are ineligible to receive SBIR funds. All of the venture capital funds are being used to support two early clinical stage programs at the company and there is no additional capital available to support other promising avenues of research. AGTC received several SBIR grants from 2001-2003 for three different projects to advance treatments for rare diseases and expand their technology platform. The results from this research were valuable in advancing the company's mission. These were projects that were either too early in their development cycle or targeted to too small of a patient population to be of

interest to financial investors. In 2003, the company applied for a Phase I/II SBIR grant that was initially approved for award with a very good score and excellent reviews, but the application had to be withdrawn due to circumstances of VC ownership. This grant would have advanced a treatment for Pompe disease, a fatal genetic disorder that in many cases results in death of infants by one year of age. No investors were willing to fund this early stage work on Pompe. To date, six years later, no further work has been done on this program.

Currently, the company is working on one of the most promising programs to treat blindness in children caused by genetic disorders. The first eye disorder being addressed is Leber's congenital amaurosis (LCA), a rare retinal disease affecting a few thousand patients in the U.S. An initial clinical trial has resulted in the restoration of partial sight in the first legally-blind patients with the inherited defective gene when they were treated with the AAV vector containing the normal form of the gene. This ground-breaking work using the company's AAV vector product candidate, as well as studies conducted by other investigators, was published recently in *Human Gene Therapy* and the *New England Journal of Medicine*. AGTC is starting additional clinical trials to test this promising therapy in patients with LCA with its current funds. However, the company desires to generate and test other gene replacement candidates for four other genetic eye diseases, particularly those with larger number of affected individuals, but cannot do so because resources are unavailable and they are unable to apply for SBIR grants for the high risk, but likely rewarding approach to treating these debilitating eye disorders.

As developers of the next-generation of treatments for diseases that would have been considered unapproachable just a decade ago, it is incumbent on our system to find ways to support these risky, but transformational therapies that could improve the lives of children and adults suffering from genetic disorders, infectious diseases, cancer, and autoimmune diseases, among others. We want to take advantage of the ground-breaking scientific discoveries in basic research that has been achieved in the last decade at the NIH, in academic centers, and in industry and translate them into tangible treatments as rapidly as possible to improve the lives for patients. This has personal and economics benefits both to the individuals affected, the organizations and companies working on these initiatives, and our society in general.

The SBIR program is an important component in the foundation and growth of new biotechnology-based companies and we ask that this funding vehicle be available to companies after they raise venture capital so that we can continue to develop these life-changing products. This policy is supported by the 2009 National Research Council's 2009 report "Venture Funding and the NIH SBIR Program." This study

found that "...restricting access to SBIR funding for firms that benefit from venture investments would thus appear to disproportionately affect some of the most commercially promising small innovative firms..." and that the current SBA eligibility rules have "...the potential to diminish the positive impact of the nation's investments in research and development in the biomedical area." The report recommends that the SBA ruling be repealed or modified so that majority-venture funded companies with significant commercial potential can compete for SBIR funding.

The role of the SBIR program in bringing breakthrough therapies to the American people is a matter of record. There are 252 FDA approved biologics that have been developed by 163 companies. Thirty-two percent of those companies have received at least one SBIR/STTR award. Despite the past successes, the ability of the SBIR program to provide critical funding for medical research projects will remain hampered, unless SBIR reauthorization updates the program to address the current realities facing small, innovative American companies.

As you know, Congress created the SBIR program in the early 1980's because it recognized that promising, early stage scientific research all too often failed to be funded through the markets because it was viewed as too high risk. This failure of the markets is often referred to as the "valley of death." Advancing science through the valley of death has never been more important than it is right now as numerous small biotechnology companies are being forced to shelve promising therapies as a result of the current economic crisis. In fact in just the last five months, at least 40 U.S. public biotech companies have either placed drug development programs on hold or cut programs all together. These programs include therapies for HIV, cervical cancer, multiple sclerosis, and diabetes.

For more than twenty years, small, domestic biotechnology companies competed for SBIR grants. In addition to providing funding, these grants were a powerful signal to the private sector that a company's research was compelling and possessed scientific and technical merit. However, in 2003 the Small Business Administration's Office of Hearings and Appeals (OHA) ruled that a biotechnology company, Cogentix, did not meet the SBIR size standard because multiple venture capital investors, in the aggregate, owned more than 50% of the company's stock. The ruling, which is not based on the SBIR statutory language, ignores the realities of the marketplace where small biotechnology firms must raise hundreds of millions of dollars to conduct capital-intensive research. On average, it is estimated that it takes between 8 and 12 years to bring a biotechnology therapy to market and costs between \$800 million and \$1.2 billion. In the case of my company, MacroGenics, our most advanced program in late stage-clinical testing is a monoclonal antibody to treat juvenile diabetes which was first developed in the early

1990's. It may come to the marketplace no earlier than three years from now after review by the FDA if the safety and clinical testing are favorable, more than 20 years from the initial discovery of the molecule. Small biotech firms typically have less than 50 employees, no product on the market, and must raise considerable funds through a combination of angel investors and venture capital firms in order to make a therapeutic commercially available to patients.

The impact of the current economic crises on small biotechnology companies has been and continues to be severe. According to the latest available data, 30 percent of small, publicly-traded biotechnology companies are now operating with less than 6 months of cash on hand, almost double the number of cash-starved companies compared to 2007. Forty-five percent of these companies have less than 1 year of cash remaining. The total capital raised by the industry in 2008 has seen a steep decline (down 55% compared to 2007).

The SBIR program has always been critical to helping innovative biologic therapeutic development programs traverse the “valley of death” and move towards a publicly available product. A role that has never been more critical than it is today. A recent joint study by BIO and Thompson Reuters found that the current economic crisis has forced over 80 percent of biotech investors to change their investment approaches. They can no longer afford the high risk that is characteristic of investment in biotech. The decline of the biotech industry jeopardizes not only America's patient population, but also America's competitive edge in the 21<sup>st</sup> century global economy. The importance of restoring eligibility to small biotechnology companies has never been clearer.

SBA has stated that the ownership rule is meant to be a proxy for determining that a company is domestic. However, the use of capital structure as a proxy for determining domesticity and the subsequent OHA ruling has had the unintended consequence of excluding a sizeable portion of U.S. biotechnology companies that would otherwise be eligible to participate in the program. Even more alarming is the fact that NIH SBIR applications have decreased 40 percent since 2004, about the time that SBIR-participating agencies implemented the new SBA restriction on majority VC-financed companies.

Small biotechnology companies generally possess a collection of research projects with one lead product and an average of 5 other therapies or candidates in early stage/pre-clinical research. Typically, a biotechnology company will begin fundraising for its lead product in development. Companies generally raise between \$5 million and \$15 million in their first round of venture financing, an amount that often results in multiple venture capital companies collectively owning more than 50% of the company. This is especially the case with very young companies whose valuation may reflect their high-risk, early stage

nature. Typically, no single venture capital company will own more than 15 to 25 percent of the company's equity.

Despite the extensive fundraising a biotechnology company undertakes for their lead product, these funds are not interchangeable, and are tied to very specific milestones to support the lead product's development. As such, in order to develop secondary or tertiary candidates/therapies, a company has to find secondary sources of fundraising capital. At the very earliest stages of development other sources of financing, such as SBIR grants, have been instrumental in advancing research and development in biotechnology. This phenomenon is described in the 2009 NAS study which explains that biologic drug development is not a linear process and has to be examined not just as SBIR funds for firms, but SBIR funds for projects. The NAS data illustrates how SBIR funds are complementary to venture capital funds and may be used to develop early-stage research projects distinct from a company's lead research project.

### **Opportunity to Strengthen/Restore SBIR Program**

I appreciate the opportunity to discuss much-needed changes to the current SBIR program. I believe these changes would strengthen the program and ensure that it is funding the best small biotechnology businesses that are working on innovative programs which have the most potential to benefit the public. My recommendations can be grouped under three general goals. First, increase competition for SBIR grants and, as such, foster innovation and commercialization by small companies with the most promise. Second, clarify SBIR eligibility rules to make them easier to understand and increase transparency regarding the program's operation. Third, maintain agency flexibility to make certain the SBIR program continues to serve the needs of individual agencies.

I will briefly discuss each of these important goals.

### **Increase Competition and Foster Innovation and Commercialization by the Best Small Companies**

SBA's 2003 ruling that excludes majority venture-backed companies inhibits the SBIR program from receiving the most competitive pool of applicants possible and stifles the ability of SBIR to carry out its mission to fund projects that will improve public health and have the most commercial potential.

The current SBA interpretation would deem eligible a public company with 499 employees and significant, perhaps hundreds of millions of dollars in revenue. However, a private company like AGTC, with 7 employees, no annual revenue, and \$37 million in venture capital by multiple venture capital funds equaling over 75% of the company's equity, even though no one venture capital firm has more than 26%

of total equity, is ineligible. Among BIO emerging companies, a significant number are ineligible, the majority of which would apply for SBIR funding if they were able. These companies are working on breakthroughs for the treatment of diseases such as Alzheimer's, lupus, and cancer.

The National Institutes of Health (NIH) have documented disturbing trends since the 2003 ruling. Applications for SBIR grants at NIH have declined by 11.9 percent in 2005, 14.6 percent in 2006, and 21 percent in 2007. Additionally, the number of new small businesses participating in the program has decreased to the lowest proportion in a decade.

Small biotechnology companies have high and intense capital needs (over \$1 billion) and an unusually long development time of 5-12 years. The vast majority of biotechnology companies raise between \$5 million and \$15 million in their first round of venture financing for their lead product(s), an amount that usually results in the venture capital firms collectively owning more than 50% of the company. However, the investment group usually consists of several firms, none of which owns more than 15-25% of the company.

SBIR plays a critical role in aiding small biotechnology companies in their early stage research to navigate through the "valley of death" where the concept is too high-risk for private market support. This has never been more important as the "valley of death" is only getting wider in these difficult economic times.

BIO supports the provisions in the SBIR reauthorization legislation that would reinstate eligibility for small biotechnology companies that are majority-venture backed. These provisions include reasonable limitations on the role of corporate venture capital investors and majority ownership by a single venture capital company. This will ensure the most competitive pool of applicants and that grants awarded will be based on projects that show the most promise in bringing breakthrough therapies to the public.

### **Clarify SBIR eligibility rules to make the application process more straightforward and user-friendly**

It is equally important that the reauthorization clarify SBA affiliation regulations. Under current SBA regulations, when determining the size of a business, the SBA considers the number of direct employees at the business as well as affiliated businesses' employees. Businesses are affiliates of each other if the SBA determines that another business has either affirmative or negative control. Current regulations state that a venture capital company that holds a minority share in another business can be considered an

affiliate of that business. If the SBA determines a venture capital company is affiliated with the business, not only are the employees of the venture capital company included in the size determination but so are the employees of other businesses in which the venture capital firm is invested.

As a result of these affiliation rules, a small company with 50 employees could be deemed to be affiliated with hundreds of other employees of companies with which the small company has no relationship whatsoever, simply because the companies share a common investor. It is important to note that this can be the case where the VC investor owns a minority stake in the small business applying for SBIR.

Not only are these affiliation rules nonsensical, the manner in which they are applied is often a mystery to the small business applying for the SBIR grant. As a result, a small company may certify in good faith that it is eligible for an SBIR grant, only to later find out that the SBA has affiliated it with a large number of employees at other unrelated companies, thus making the small business ineligible.

BIO supports the provisions in the SBIR reauthorization legislation that would create a more rational and effective affiliation process regarding determinations about an SBIR applicant's investors' portfolio companies. Specifically, BIO supports language to clarify that minority investment by a venture capital operating company does not make that company an affiliate for the purposes of determining size. This common-sense provision will provide clarity and peace of mind for small business entrepreneurs looking to participate in the SBIR program.

### **Maintain Agency Flexibility**

BIO also supports maintaining agency flexibility in the SBIR program. One of the great strengths of the SBIR program is that Congress provided the affected departments and agencies with flexibility in establishing the program. Maintaining flexibility in the program is also supported by a National Research Council 2007 report which states, "...flexibility is a positive attribute in that it permits each agency to adapt its SBIR program to the agency's particular mission, scale and working culture."

The reality is that various government agencies may structure their SBIR program in different ways to meet differing agency needs. This is a good thing, so long as the original goals of the SBIR program are preserved. Certain agencies, for example, may need the flexibility to award larger grants, if the project they are funding is in an area where research is typically more expensive. This is sometimes the case for biotechnology companies researching therapies that are especially novel or cutting-edge. For this reason, BIO does not believe that a hard cap should be applied to the SBIR grant amounts.

Additionally, any caps on SBIR grants, if imposed, should apply to particular SBIR phases and should not apply to the entire amount that the agency spends on a particular project. The NIH, for example, has chosen to implement a commercialization assistance program for those companies who may need extra funding before they can attract private dollars. A hard dollar cap in the SBIR program could threaten such a program and this would be, in BIO's opinion, very unfortunate.

BIO supports provisions in the SBIR reauthorization bill that would protect an agency's ability to fund commercialization programs and determine when it is appropriate to exceed award amounts. As the NAS 2009 report made clear, SBA should continue to rely on agency managers' judgment, experience, and understanding of mission needs to effectively administer the SBIR program.

### **CLOSING REMARKS**

Congress can continue to support the United States biotechnology community by allowing the government to partner with small biotechnology companies that have promising science but need additional resources at key stages of development not readily available in the private capital markets. SBIR should be an aggressively competitive program that fulfills federal research and development goals of bringing breakthrough public health discoveries to the public. BIO believes that the modernizations to the SBIR program being considered by the committee will help to accomplish these important objectives.