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# Save New Jersey's leadership role in life sciences

By MOHAMED EL-SHERBEINI

NEW JERSEY, long known as the "Medicine Chest of the Nation," has a rich history of research and development that is unmatched by any other state, with many of the top global pharmaceutical companies based or operating here.

As World War II raged on, the government initiated collaborations among pharmaceutical companies to scale up production of penicillin to treat infections in wounded soldiers. With help from Selman Waksman from Rutgers University, Merck streamlined a process for penicillin production. By 1943, New Jersey-based companies, including Merck, Squib and Pfizer, started mass production of the drug, and by 1945 it was produced at a phenomenal rate of nearly 7 trillion units per month.

At the same time, malaria was killing off American troops in the South Pacific, whereby 1942 infections were a bigger threat than combat-related injuries. Once again, it was New Jersey-based companies that ensured a steady supply of the drug (atabrine) used to treat soldiers infected with malaria.

In a yet another example, onchocerciasis, commonly known as river blindness, a parasitic disease, once plagued millions of people in more than 35 countries around the globe. The drug ivermectin was discovered at New Jersey-based Merck as a highly effective treatment. In October 2015, Dr. William Campbell, currently at Drew University in Madison, was awarded the Nobel Prize in physiology or medicine for his early work on ivermectin.

The list of innovations goes on. From penicillin to ivermectin, the contributions New Jersey has made to the field of life sciences have been tremendous.

## Decline in funding

In spite of past success and the present wealth of resources and talent in the field, New Jersey continues to lose leadership and high-paying jobs to life sciences hubs elsewhere. Compounding this problem is the continuing decline in funding of life sciences research by the National Institutes of Health. In the face of declining federal funding, local companies' financial support of academic research became a key to continued growth in the field. Unfortunately, industry-level investment in academic research is declining as well, as many of the larger companies in the area undergo consolidations, move operations abroad and outsource their research and development programs.

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The current fiscal environment necessitates implementing new business models to sustain life sciences programs and maintain the state's position as a global leader in pharmaceutical research. Unfortunately, we are trailing other states in addressing the issue.

Other states have responded to the challenge by establishing public-private partnerships, or PPPs, to serve their communities and to help the economy. In 2008, Massachusetts established a 10-year, $1 billion investment in life sciences. That initiative established a road map to expand the life sciences activities in the state, including a plan to promote life sciences across the board, from high school labs to globally competitive businesses providing high-paying jobs. Implementation of the programs was overseen by the Massachusetts Life Sciences Center.

Fostering PPPs is an important step to restoring New Jersey's historic leadership and boosting life sciences education in the state. Innovations in this field require mobilization of considerable resources above and beyond the capacities of any single academic institution. The hope for tapping into the state's existing extraordinary expertise in life sciences lies in the PPPs.

## Training a local workforce

The proposed New Jersey life sciences PPP fund could be used to advance the state's standing in life sciences research and encourage new companies to operate in the state and develop a well-trained local workforce. This will enhance the state's position as a world leader in life sciences.

New Jersey's wealth of human capital has long been targeted by other states seeking to develop life-sciences-based economies. States competing in this field include New York, Massachusetts, California and Texas. These states have all stepped up their efforts in the life sciences. A PPP initiative here would ensure that the state remains globally competitive while providing opportunities for its outstanding academic life sciences research.

## Bold initiative needed

The message to the state's lawmakers is clear: A bold initiative in PPP in life sciences is urgently needed for the benefit of the economy and our academic institutions. Many factors are lined up to ensure success of such endeavor. The state has a highly trained and diverse workforce with skills in both academic and industrial research. Our state is the home of leading universities and the best pharmaceutical companies in the world.

Finally, the recently established Institute for Life Science Entrepreneurship is capable of implementing this initiative. ILSE is a regional integrator that has been incorporated as a not-for-profit organization, governed by a board of directors and further advised by scientific and industry advisory boards. Taken together, all these factors present a compelling case for PPP of New Jersey life sciences.

With the recently announced initiative by state Senate Democrats to renew investment in New Jersey's economy, they should seriously consider this case.

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