



Therapeutic for Autoimmune Diabetes Business Executive and Co-founder Search

The UMN is seeking a business executive to partner with Dr. Jan Cyzyk and develop a plan to commercialize this technology via the formation and launch of a startup company.

Overview

According to our work on pancreatic islet regeneration and inflammation, patients with Type 1 Diabetes (T1D), including the 15,000 youth that are expected to develop this disease annually in the US, may benefit from treatment to protect against T1D. An additional 50 million adults worldwide with latent autoimmune diabetes of adults (LADA) may benefit from a monoclonal antibody therapy against serpinB13. LADA accounts for approximately 10% of patients originally diagnosed with Type 2 diabetes mellitus. Therefore, the potential impact of this technology is very significant. The advantage of our discovery lies in the idea that tissue regeneration is stimulated by blocking serpinB13 and restoring the activity of its protease target. The second advantage is that our antibody to serpinB13 suppresses inflammation, increases beta-cell proliferation and delays the onset of diabetes. Thus, by using a single reagent that regulates the balance between serpin inhibitor and protease, we can simultaneously suppress the inflammatory response while promoting regenerative changes in the pancreas and other tissues expressing serpinB13.

Current progress, milestones or goals

The UMN laboratory originally developed a mAb to serpinB13 (clone B29) in mice that was subsequently humanized and shown to maintain its binding affinity to antigen ($KD=1.21 \times 10^{-9}$ M) (provisional patent application submitted on 08/05/2019). This mAb selectively binds serpinB13 and no other members of the serpin clade B family. Moreover, B29 recognizes human serpinB13, and is functional as it blocks the inhibitory activity of serpinB13, thereby allowing partial preservation of the function of its target protease. We found that injecting B29 markedly reduces, in a protease-dependent fashion, intra-islet inflammation in NOD mice and prevents severe insulin-dependent diabetes in the animals. Independent of its anti-inflammatory properties, we also found that injecting mice with B29 induces protease-mediated degradation of Notch (a highly conserved signaling pathway that is critical for pancreatic development and growth) with an ensuing increase in the number of Ngn3+ endocrine progenitors and increased resistance to severe diabetes in adulthood. Additional evidence

Industry sector(s)

Biology & Pharmacy

Stage in the pipeline

Stage 2; Opportunity Assessment

IP Status

PCT Filed Aug 3, 2020

Title: Compositions and Methods for Treating Serpin B13 Disorders

Inventor

Dr. Jan Cryzyk

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that serpinB13 antibodies are protective in human disease has been provided by our crucial translational studies. Specifically, we found that humans normally expressing serpinB13 autoantibody (AA) have higher levels of fasting and meal-stimulated C-peptide at the time of T1D onset, and those that are healthy but at risk for T1D, progress to diabetes at a significantly slower rate compared to the serpin B13 AA-negative individuals.

Additional Information

This may be a part time role in the beginning stages of the company launch with a transition to a full time role at the appropriate time.

Activities, tasks and responsibilities

- Set up and establish the business. Develop the business plan and business model with the help of the UMN research team and the Discovery Launchpad resources
- Finance the business with customer contracts or raise capital as needed
- Develop high-quality business strategies and plans
- Operate and scale the business, drive the business to success
- Review financial and non-financial reports to devise solutions or improvements
- Lead and motivate subordinates to advance employee engagement develop a high performing managerial team
- Maintain a deep knowledge of market and industry trends
- Establish a board of governance

Skills and abilities

- Have the relevant experience in bio/pharma industry
- Have an entrepreneurial mindset with outstanding leadership skills
- Leadership skills to pull together the resources to operate the business
- Experience in developing, planning and implementing successful strategies
- Be familiar with diverse business functions such as marketing, sales, finance, human resources, etc
- Create, communicate and implement the vision for the company
- Be effective in communicating and have strong public speaking skills
- Possess outstanding organizational and time management skills

This is for informational purposes and not an offer letter, explanation of benefits or guarantee of employment

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- Ability to analyze problematic situations and occurrences and provide solutions to ensure company survival and growth
- Excellent interpersonal and leadership skills
- Willing to roll up their sleeves and dig

Qualities preferred

- Experience in successful startup leadership
- Experience in raising early stage capital
- Proven track record of building successful products and high performing teams from the ground up

Compensation

Compensation for this role will be determined by the founders of the new company. Candidates for this position should expect to have considerable runway.

- The University of Minnesota and the Technology Commercialization Office will not provide nor be responsible for any cash or non-cash compensation for this role.
- The primary compensation may be consistent with typical startup compensation strategies including an equity position in the company in the form of founder's shares.
- Percentage of ownership, vesting timelines and other details of an offer will be negotiated with the other founding team members.
- All costs incurred in this position will be your responsibility.
- Expect any future cash or monetary compensation to start below market. The performance, success and trajectory of the company may influence an increase or acceleration of benefits.
- It will be expected that the person agreeing to this role will sign an MOU that includes, at a minimum, the items above.

If you are interested in this opportunity please contact Russ Straate at rstraate@umn.edu