Accelerating Drug Discovery and Development using a Proprietary Screening Process for Drugs Approved Outside of the US with a current focus on Targeting Cancer Stem Cells in Chronic Myelogenous Leukemia

"We believe that an approach of combining TKIs (e.g., imatinib) with ES-3000 could potentially shift the treatment paradigm for CML and improve durable clinical responses. Our hope is that ES-3000 would be the first approved drug for eliminating cancer stem cells and minimal residual disease."

- Saira Bates, MBA

Saira Bates, MBA
Co-Founder & CEO
Escend Pharmaceuticals, Inc.

CEOCFO: Ms. Bates, according to your site, Escend Pharmaceuticals is Targeting Disease Dependent Pathways, in an effort to find therapeutics for cancer. What is your approach?
Ms. Bates: While traditional drug development targets each drug to a particular disease, such as drug A for disease A, drug B for disease B, etc., we are approaching the process by identifying and targeting survival or activation pathways that cross over between different diseases. We take foreign approved drugs that have established clinical safety and then match these agents to oncology orphan indications where their effects on these pathways can be exploited for the development of novel drugs. I just want to clarify that this is not repurposing in a true regulatory sense because these drugs haven’t yet been approved in the US for any indication. Therefore, we can’t use 505(b)2 mechanism. Our products will have new molecular entity status in the US.

CEOCFO: What goes into the evaluation process?
Ms. Bates: We have an internal system for drug screening which is similar to the concept of ‘Rule of Five’. So with this process, we have identified drug candidates valuable for oncology orphan indications that are in current clinical use outside of the US for different indications. We
then dig down deeper for new scientific information about the drug; for example, new mechanism of action details or potential target, etc. We can then confirm its potential new use by conducting *in vitro*, *ex-vivo* and *in vivo* studies.

**CEOCFO: What are you working on today?**

**Ms. Bates:** Our lead compound, ES-3000, is for the treatment of chronic myeloid leukemia (CML). It is an orally bioavailable small molecule. It is approved outside of the US as an anti-inflammatory drug. We are developing ES 3000 for chronic myeloid leukemia, because it reduces beta-catenin expression through a novel mechanism of action. Wnt/β-catenin pathway is of particular interest because it is critical in the survival of leukemic stem cells.

**CEOCFO: What is behind that?**

**Ms. Bates:** What is behind it is that ~1/3 of the patients treated with tyrosine kinase inhibitors such as imatinib do not achieve optimal responses, indicating minimum residual disease due to the persistence of leukemic stem cells; a major cause of resistance and relapse.

**CEOCFO: Are you surprised, with so much research going on, that there are still much not investigated yet?**

**Ms. Bates:** I believe there are several groups researching and repositioning, approved and never approved drugs and finding new uses for them. There are many unmet needs which could be addressed with drug candidates that have previous clinical experience. For example, ES-3000 has not yet been approved in the US for any indication but has clinical experience outside of US. Though, tyrosine kinase inhibitors have been remarkable in the treatment of CML, minimal residual disease is still an unmet need which ES 3000 will address to provide more durable clinical responses to CML patients.

**CEOCFO: Where are you in the process?**

**Ms. Bates:** We are a pre-clinical stage company. We hope to file our IND within 8-11 months. Even though we have not yet filed the IND, we have a lot of data on ES-3000. In fact, National Cancer Institute (NCI) had previously conducted a Phase I trial with this drug. So, ES-3000 is much more than a preclinical asset.

**CEOCFO: Do you work with partners on development or on funding? What is the business side?**

**Ms. Bates:** We have forged research collaboration with University of Massachusetts Medical School. We are in current discussions with other academic institutions regarding mechanistic studies to further understand ES-3000 effects on cellular survival and activation pathways. In June, Escend attended BIO 2016 and had lots of wonderful meetings. We met with pharmaceutical companies, investment bankers and venture capital firms. We are interested in partnering with an entity that believes in our business strategy and shares our passion for bringing new therapies to eliminate minimal residual disease in chronic myeloid leukemia, acute myeloid leukemia and other malignances.

**CEOCFO: What is the interest from the investment community today in repurposed drugs?**

**Ms. Bates:** There is interest! There have been several examples of successful repurposed drugs. Again, we are not repurposing in a true regulatory sense but our approach for selecting drug candidates with established safety and matching them to new indications, essentially
decreases development time and costs while increasing the value of our assets.

CEOCFO: **What else is in your pipeline?**

**Ms. Bates:** We have another asset that we call ES-4000. It is an inhibitor of short lived proteins such as c-Myc, cyclin D-1, Mcl-1, etc., which are overexpressed during oncogenesis. We have preliminary data to suggest that ES-4000 can be developed for pancreatic cancer where higher level of c-Myc expression has been correlated with higher tumor burden and poor prognosis.

CEOCFO: **What is ahead? What might be different a year from now at Escend?**

**Ms. Bates:** We hope to be in clinical trials for ES-3000 in CML and expand our clinical program to other indications. ES-3000 has also shown excellent pre-clinical efficacy in acute myeloid leukemia (AML), as well as in triple negative breast cancer (TNBC).

CEOCFO: **Why pay attention to Escend Pharmaceuticals, both from the investment perspective and from the health perspective? What sets Escend apart?**

**Ms. Bates:** What sets us apart is our team which includes co-founders along with clinical and scientific advisors who have previously founded companies; Matrix Pharmaceuticals (acquired by Chiron), OncoPharmaceuticals and ChemGenex (acquired by Cephalon). The team has previously supported the development strategy for two FDA approved drugs. The investment community should pay attention to Escend because of our track record, business model mitigating development risk, agents with unique mechanism of action affecting cancer stem cells, robust IP and marketing exclusivity with orphan drug designation. We believe that an approach of combining TKIs (e.g., imatinib) with ES-3000 could potentially shift the treatment paradigm for CML and improve durable clinical responses. Our hope is that ES-3000 would be the first approved drug for eliminating cancer stem cells and minimal residual disease.

*Interview conducted by: Lynn Fosse, Senior Editor, CEOCFO Magazine*