Bessor Pharma

Building Value by Uniquely Translating University Assets into Promising Therapeutics

Bessor Pharma is utilizing an innovative technology/business model for new drug development and value creation, with a focus on translating opportunities from university laboratories into proof-of-concept (PoC) or clinical-ready packages for the pharma/biotech industry. The Company which has unique skills, connectivity and capital markets sophistication, is forging an ecosystem of academic and industry partners as key stakeholders facilitating translational R&D. Bessor is differentiated by its: aligned team with an unparalleled track record in drug development; operational progress; and unique collaborative partnerships fueling an innovative pipeline of highly needed drugs.

Bessor has made great progress in operationalizing its model. Key achievements in the last 18 months include:

- *Launched four novel projects across multiple indications in the areas of immunology/inflammation (12-18 months to IND), and cancer (one completing a Phase 1 clinical trial and a biomarker driven cancer therapeutic 18 months from IND).*
- *Established a growing set of relationships with major universities, including Yale University, Texas A&M and Beth Israel Deaconess Medical Center and pending relationships with more than 10 other US institutions.*
- *Building a pipeline of in-licensing ready additional projects with R&D leaders.*
- *Created a set of standardized licensing and revenue sharing documents to streamline the partnership process with academic institutions and align incentives among all the parties.*
- *Awarded two government grants and sponsoring research at two academic medical centers.*
- *Established a fully integrated pharmaceutical network (FIPNET) including a growing network of more than 20 key advisors and companies.*

The Company is capitalizing on changing industry dynamics to access and advance promising opportunities from academia that have been generated through $30 billion annual NIH and other grant- funded research. In the current environment, these promising assets are increasingly untapped. We have developed a flexible, semi-virtual, project-oriented, capital-efficient approach that attacks and solves key translational, drug development and financing challenges.

With its efficient, proven and outstanding network of world class, research, clinical and drug development experts, Bessor rapidly advances projects to a significant value point – IND ready or predictive proof-of-concept (preclinical or clinical) with the objective of a strategic transaction or sale to pharmaceutical, large biotechnology or diagnostic companies in 18-30 months. At the same time our approach matches well with the deal dynamics and investment strategy big Pharma is increasingly emphasizing. The transactions, along with our project-based structure using individual project LLCs, are designed to generate a flow of investor/stakeholder returns from upfront payments, milestones, M&A events and royalties. Returns in our approach do not rely on a single project or the hope for a single liquidity event but are based on a portfolio of attractive innovative projects, providing "multiple

shots on goal," serial liquidity and enhanced probabilities for success. Bessor has assembled a top team of pharmaceutical R&D and business experts to select and advance our products. Collectively, the team members have played central roles in developing nearly 20 successful therapeutics, including Corlopam®, Tykerb®, Topotecan®, Gemzar®, and Coreg®. The team, along with complementary outside expertise, provides a fully integrated pharmaceutical development network. The operational team is led by Dr. Barry A. Berkowitz who has launched, grown, and created significant teams, assets and value at both major pharmaceutical (Roche/GSK) and biotechnology companies, including Myco/Chemgenics (acquired by Millennium Pharmaceuticals), Fibrogen (IPO 2014) and New Chemical Entities, Inc. (acquired by Albany Molecular).

Clear Need for Better Business Models and Improved R&D Process

The clinical need and commercial opportunity for innovative drugs remains enormous, yet at the same time it is apparent that traditional development and investment models are insufficient. Major pharmaceutical and biotechnology companies, facing urgent needs for both increased R&D productivity and new, effective and innovative products, increasingly are turning to acquisitions and outsourcing.

Academic institutions continue to develop promising early stage research assets, driven in large part by top scientists and science fueled by NIH funding. Today, however, venture capital investment in USA, which has traditionally fueled company formation to advance technology from academia, has declined or shifted to later stages of development as emerging company business models have proven neither cost effective nor generated attractive enough returns for most VC ROI goals. Resources and goals at venture-backed companies can often become misaligned as projects evolve, increasing costs, slowing progress and limiting survival options. The established paths to liquidity – capital gains through IPOs or M&A – have become problematic. The IPO market is very cyclical and no longer a sufficiently reliable value generating option and high value acquisitions of entire biotech companies are rare.

Bessor's Differentiated Development and Financing Model

The Company has a unique, flexible structure focused on projects that functions as a FIPNET to acquire, develop and sell a portfolio of carefully selected projects, primarily from universities, with the goal of creating a diverse flow of investor/stakeholder returns. The model is also designed to accommodate selected diagnostics; particularly those coupled to a follow on therapeutics, and we have already begun pre-IND work on such a project. The key elements and value of the model are:

Capital Efficiency – Bessor is a semi-virtual organization that leverages a world class team of research, drug development and clinical experts across its project portfolio on a just-in-time basis and integrates with partners to provide comprehensive, global development capabilities. The team, whose members have been integral to the development of multiple successful drugs, also plays key roles in the Company's project selection process. Each team is selected and designed to optimize the development of a specific project.

Focus on Value-Building Translational Projects –This approach is designed to integrate clinical and commercial expertise early in the process, along with predictive metrics such as biomarkers, to identify candidates with a high potential for success and to drop unsuccessful ones which fail rapidly.

The result is a more promising product portfolio for further development. Our focus is primarily mid-to-late stage research through clinic ready development, while we also bring capabilities to develop

carefully chosen candidates through compelling proof-of-concept.

Scalable Model/Flexible Returns – Our model is differentiated as it is operational and efficiently enables multiple, carefully selected projects to be developed in parallel, increasing the chances for success and mitigating risk. The Company is structured to create opportunities for a sustained flow of returns on investment to stakeholders from license fees, milestones and royalties, as well as capital gains, thereby aligning investor returns with the risk-sharing approach preferred by pharmaceutical partners. Our model is efficiently scalable and flexible and can accommodate selected additional interfaces, for example with disease foundations or partners for focused pipeline needs.

Aligned, Committed Top Team – Bessor is structured to better align the interests of all its stakeholders. The highly experienced team is committed to working collaboratively and has a shared passion for active engagement in developing innovative new drugs and diagnostics. A culture of and commitment to drug discovery and development is broadly shared by Bessor's team. Unique alignment features include synergies among the key stakeholders and three strong drivers of progress: Top notch R&D/business team; university/medical center input and champions; capital market and finance sophistication.

Streamlined project evaluation and licensing terms, strong collaborative partnerships with universities. Bessor offers universities attractive, standardized, straightforward, non-dilutive licensing terms co- designed by us and university technology transfer leaders. Each university receives the exclusive and full benefit of its own project successes because projects are developed on a standalone basis. Novel means for university partners to further share in exceptional success is built into the interactions. Moreover, our streamlined approach is designed to avoid the usual conflicts of interest and the almost endless and non-efficient haggling that usually precedes and slows such alliances. Through the evaluation process and project development, Bessor builds highly collaborative relationships with the university and investigators to synergize its projects.

Validated – The Company is operational and producing results, with four projects launched, an additional IND expected within 12 months of the current financing, established university relationships, a growing IP portfolio and identified promising additional projects.

Bessor's Initial Projects

The company has launched four innovative projects across multiple indications and a platform technology, including:

Immunology/Inflammation: Novel Signaling Pathways and POC Clinical candidates

- **TSG-6,** a multi-functional anti-inflammatory modulator responsible for the key therapeutic activity of mesynchymal stem cells (MSCs). There is also a non-naturally occurring active fragment. The project is with Dr. Darwin Prockop, MD, PhD, a worldwide leader in stem cell and therapeutics and Director of the Institute of Regenerative Medicine at Texas A&M. Bessor has licensed the technology from Texas A&M.

    - ***Neurology***. Example: Traumatic Brain Injury

      Administration of MSCs previously have been shown to produce beneficial effects in models of traumatic brain injury (TBI) as well as other disease models. In several models, these effects were explained by MSC activation to express TSG-6. In a mouse

model of TBI, TSG-6 has been shown to decrease lesion size and inhibit pro-inflammatory proteins in the initial phase of the inflammatory response (first 24 hours), and demonstrate longer term (6-10 week) improvements in memory, depressive-like behavior and the number of newly formed-neurons. The data suggest that administration of TSG-6 may be an effective new therapy for decreasing consequences of TBI, stroke and neuro-inflammation.

Neurobiol Dis. Nov 2013; 59: 86–99. Administration of TSG-6 improves memory after traumatic brain injury in mice. Jun Watanabe, Ashok K. Shetty, Bharathi Hattiangady, Dong-Ki Kim, Jessica E. Foraker, Hidetaka Nishida, and Darwin J. Prockop

- ***Ophthalmology.*** Examples: ocular inflammation, including corneal injuries, corneal transplants and dry eye). Preclinical TSG-6 efficacy has been demonstrated and we expect to submit an IND in 12-18 months for an area of high need and potential. This is a clinical fast track proof of concept project that with continued success not only establishes a useful novel inflammatory regulator for eye products but would accelerate broader market utility in a number of high value therapeutic areas.

- **Renalase**, a recombinant form of a naturally occurring enzyme whose absence is related to kidney disease and hypertension. There is increasing evidence and we have shown multiple PoC examples that alterations in renalase may be an important new and useful biomarker and diagnostic for inflammation including but limited to Cardiovascular/renal injury/inflammatory disease which if identified could be treated or prevented with recombinant renalase or unique renalase peptide analogs. The project is in collaboration with Gary Desir, MD, a leader in nephrology who is currently Chair of Medicine at Yale. Bessor has licensed the technology from Yale.

  - ***Cardiovascular and Renal Disease***. Example: Acute kidney injury
    Data indicates renalase deficiency can be associated with acute kidney injury (AKI) and that it is tissue protective in AKI models. We have also shown proof of concept for novel analogs. Development is being further accelerated by an NIH STTR grant. We are making rapid progress towards an IND in 12-18 months.

Renalase in hypertension and kidney disease. Desir GV, Peixoto AJ. Nephrol Dial Transplant. 2014 Jan;29(1)

  - ***Stroke*.** Increasing evidence, including recent genetic evidence, has linked an association of renalase SNPs as one of only a very few genes with risk predisposition to ischemic stroke.

Renalase: its role as a cytokine, and an update on its association with type 1 diabetes and ischemic stroke. Guo X, Wang L, Velazquez H, Safirstein R, Desir GV. Curr Opin Nephrol Hypertens. 2014 Sep;23(5):513-8.

- **Pancreatitis Project.** We have developed promising PoC in animal models of pancreatitis for a biomarker driven therapeutic. Available for general discussion and with details under CDA.

Oncology

- ***A new target, diagnostic and biomarker driven anticancer therapeutic***

The project has been developed through preclinical *in vivo* proof-of-concept for difficult to treat cancers. We have identified, the target, receptor, and mechanism and an antibody-based therapeutic that is active in in vivo cancer models of important solid tumors, one of which has no known therapy. We have also developed a diagnostic assay. The project is 18 months from IND. Proof of concept shown both in vitro and in vivo. Bessor has organized a world class cancer project team to accelerate this project.

- ***Novel tubulin inhibitor for treating solid tumors***

Pre-clinically the drug, which has IV and oral potential, has greater potency than a current market leader. In a nearly complete and promising Phase 1 clinical trial, the compound was well tolerated, with data showing best in class potential with both increased potency and improved therapeutic index. Bessor is advancing this project, which is licensed from one of its network partners, AMRI.

Platform Technology

In collaboration with Dr. Prockop and several worldwide leaders, Bessor has licensed and is aggressively advancing the intellectual property around a platform of stem cells, stem cell derived therapeutics and key stem cell signaling molecules and pathways. The platform is innovative, proprietary and we have developed lead compounds and analogs to *in **vivo*** proof of concept preclinical studies with unique *in vivo* activity for cardiovascular, pulmonary and neuroscience focused therapeutics.

Leadership Team

Barry A. Berkowitz, PhD *Chairman of Board of Directors & CEO* Drug R&D executive and entrepreneur	Former: Co-founder and/or CEO, Myco/Chemgenics, Fibrogen, New Chemical Entities; Senior positions at Roche, SmithKline; Corlopam®
Jon Soderstrom, PhD *Member of Board of Directors;* University technology transfer and commercialization leader	Managing Director, Yale University Office of Cooperative Research, Past President Association of University Technology Managers
Marc E. Goldberg, JD, MBA *Member of Board of Directors* *Chairman of Business Advisory Board*	Co-founder and Managing Director, BioVentures Investors, former CEO Mass Biotech Research Institute, Founding President Mass Biotech Council
Mark Roffman, PhD *VP Drug Devel and Reg Affairs (Neuroscience)*	Former GSK; more than 30 years, drug dev.,clinical research, regulatory affairs, orphan drug experience
Eliot Ohlstein, PhD *VP Pharmacologic R&D including CV/Renal*	Former VP GSK (Coreg®)
Satish Menon PhD *VP Biotechnology R&D (Biopharm R&D)*	Former: Schering-Plough, Allergan
Robert Morgan, *CFO*	Former: PriceWaterhouse; Co-Founder, Chemgenics New Chemical Entities; NewCoGen (Flagship VC fund)
Allan M. Cohen, Esq., CPA *General Counsel, Licensing and IP*	Former: Auven Therapeutics; Celtic Pharma; McDermott, Will & Emery; Arthur Andersen & Co.
Neil Spector, MD *Scientific Advisory Board* Drug development and biomarker expert	Dir., Translational Res, Oncology and Co- Director of the Experimental Therap. Program Duke Cancer Center; Tykerb® (lapatinib), Arranon® (nelarabine);
Randall K. Johnson, PhD *Scientific Advisory Board*	Former GSK Group Research: Director, In Vitro and In Vivo Drug R&D; Topotecan®;
Homer Pearce, PhD *Scientific Advisory Board* Medicinal chemistry and R&D expert	Former VP, Lilly; Gemzar® (gemcitabine), ALIMTA® (pemetrexed)
Tony Barrett, PhD *Scientific Advisory Board* Natural product, analytical and medicinal chem.	Sir Derek Barton Professor of Synthesis, Director, Wolfson Centre for Organic Chemistry in Medical Science, Imperial College, UK
Lewis Lanier, PhD *Scientific Advisory Board*	Chair, Department of Microbiology and Immunology, UCSF. National Acad Sci.
Key Consultants/Advisors include: **James Dolan** (ex-Pfizer and Sr VP Bus Dev. Purdue Pharma); **Richard L Sherman** (ex- Dep. Gen. Counsel, SmithKline Beckman) **Wallace Dairman, PhD** (Ex-Roche); **George Demetri, MD** (Dana Farber, Gleevec®); **Armand Keating**, MD, Chair Cell Therapy and Transplantation, Un of Toronto; **John Edwards MD** (UCLA, Chief Infectious Disease; **Ian Scott** (ex-Dir Chem AMRI, Allergan); **Martin Hynes** (ex-Dir Eli Lilly Project Mgt, Quality Assurance, Neuroscience)	Pharmacology/toxicology, in vivo models, anti-infectives, cardio-vascular, immunology/inflammation; renal, CNS, diabetes, biotech process development, medicinal chemistry and scale up, regulatory, project/data management, statistical analysis, drug development and strategic alliances

Contact: Barry A. Berkowitz, PhD:
e-mail: BBerkowitz@Bessorpharma.com; Phone: 508-877-4522