Overview:
- CAR T cells show tremendous clinical efficacy but also lead to serious acute and chronic toxicity, with insufficient existing solutions.
- Using Chimera’s SM(a)RT CARs™ to manage toxicity, we will develop next generation CAR T therapeutics for previously unaddressed indications, increase the market for CAR products (>> $10B) and improve efficacy and patient outcomes.
- Chimera has generated and sourced foundational IP.
- Operating on a current seed round, to develop PoC, raise Series A by early 2016.

Mission: To develop and deliver safe and effective chimeric antigen receptor T-cell (CAR) therapies and expand the applicable disease horizon and addressable market through sophisticated CAR control technology.

Problem: CAR technology blends modern synthetic biology and personalized medicine to create immunotherapeutic responses with tremendous clinical results. CARs hotwire patient T-cells to find and kill tumor cells that are decorated with a defined target antigen and provide lifelong tumor surveillance and removal. The key limitation of CAR technology is toxicity, which is a consequence of their potency. Toxicity currently limits the disease application horizon of CARs to the treatment of a handful of hematological malignancies which still requires intensive patient management.

Solution/Technology: To solve the CAR toxicity problem, Chimera will develop and manufacture modular, tunable, genetically encoded control devices for CARs. Chimera control devices respond to bio-orthogonal small molecule ligands and can be customized to respond to virtually any ligand input. Using Chimera control devices, CAR therapies can be tuned to maximize the therapeutic window, enabling independent control for combination CAR therapies. Chimera technology will expand the application potential of CAR therapies to include all cancers, including solid tumors.

Market: Companies building CAR therapeutics (JUNO, KITE, BLUE, BLCM, CLLS, all IPO’d since 2014, combined market cap of $15B) have initiated multiple phase I/II clinical trials for several B-cell malignancies. The CAR market for these B-cell diseases alone is estimated to reach $10B. The CAR research and development space is fiercely competitive, and CAR manufacturers will require differentiating gene regulatory technology to expand CAR programs, and markets, to non-B-cell malignancies.

Competition: Because of the critical need to manage toxicity, multiple current approaches to address CAR regulation exist. Suicide genes (BLCM, JUNO) and transient exposures (Unum) are effective at mitigating acute toxicity but eliminate therapeutic function. Inhibitory CARs (JUNO) require significant development and are challenging to implement clinically. Intrexon’s RTS platform appears compelling but is limited in extensibility and is currently exclusively licensed to a single pharmaceutical company. There is still a central need for extensible and effective CAR control technology.

Business Model: Chimera is committed to bringing CAR therapeutics to solid tumors and AML. We plan to build orthogonal CAR control devices for internal clinical therapeutic assets as well as for partnerships.

Status: Chimera holds generated and sourced foundational IP and has initiated in vitro proof of concept experiments. We are actively recruiting advisors and full time teammates with commercial, clinical and regulatory expertise.

Financing: Chimera is raising a $500k seed round via convertible note.