



A SMART CELL DRUG (SmaCD) DELIVERY PLATFORM FOR MOBILE, TARGETABLE, SELF-RENEWABLE, AUTONOMOUS COMBINATION THERAPY

TECHNOLOGY DESCRIPTION

Amyloid β ($A\beta$) senile plaques and tau neurofibrillary tangles are both required for Alzheimer's Disease diagnosis postmortem. A combination therapy (CT) targeting $A\beta$ and tau would likely prove superior to targeting either one alone. However, large-scale CT trials have probably been restricted by their increased complexity, additive off-target toxicity, and increased clinical trial costs.

Buck investigators have come up with an elegant delivery platform – called SmaCD, for a “smart cell drug” – which can contain any number of biosynthetic drugs targeting multiple species of aggregates of one or more proteins and secrete them only when the pathological species are present together with soluble diagnostic markers to inform the presence of one or more disease as well as the therapeutic progress. This methodology would enable CT to multiple targets while minimizing off-target toxicity. The proof of concept work has been done with known drugs in a murine model, but the delivery platform can potentially work with many different payloads.

APPLICATIONS

- Combination therapy for Alzheimer's Disease as well as other neurodegenerative diseases.
- Companion diagnostic for monitoring therapy progression.
- Potentially increased therapeutic window for compounds that may have had toxic side-effects in earlier trials.

PATENT STATUS

Provisional patent application filed

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