

Decision Support Tool for Oncology Treatment using Mathematical Simulations



Our technology is a decision support tool for identifying and optimizing treatment regimens by comparing patient profiles with a databank of virtual patient profiles resulting from mathematical simulations that are stored and electronically catalogued by treatment and clinical response. This tool is presently optimized for six cancer types including pancreatic, breast, lung, prostate, glioma, melanoma and leukemia, but could be used with a number of diseases. This technology may increase the probability of successful individualized treatment regimens by allowing clinicians to focus on efficacious therapies.

COMMERCIAL OPPORTUNITY

- There were about 1.7 million new cancer cases and 586,000 cancer deaths in 2013. The total cost of cancer for the US each year is estimated at \$228B for treatment, morbidity and mortality. Moreover, in the January 2012 JNCI, it was suggested that with a drug efficacy rate estimated at 50%, the resulting global annual waste from misdiagnosis might be about \$350B.
- The market place is attractive as evidenced by multiple companies that are currently offering decision support tools for cancer therapy including Foundation Medicine, Eviti, CollabRx, Adjuvant! Online, and QxMD. These companies are beginning to offer differentiated products with Foundation Medicine and CollabRx focusing on genetic tests, Eviti working with private payers to maximize reimbursed treatment protocols, and Adjuvant! Online and QxMD offering online interactive tools. Roche is spending over \$1B to buy a 56% stake in Foundation Medicine, including investing \$250M in the company to get all ex-US rights to the tests.
- Typical applications currently used in the clinic are static using historical data and are used to identify a sub-cohort that has similar properties to those entered by the clinician. These applications have several limitations. First, they can only subdivide patients across parameters which have been measured and recorded in the historical database. Second, they can only give results for therapies which have been used historically on significant numbers of patients. Our virtual database however can give predictions not in the historical databases in addition to those in the historical databases.

TECHNOLOGY

The Integrated Virtual Patient Framework (IVPF) is a method for individualizing and optimizing clinical treatment decisions for patients by using mathematical model simulations based on cancer biology. The system will be dynamic, allowing for new measurements of patient data to be incorporated to update the mathematical model and make predictions about the efficacy of additional therapies. This method also integrates physician input about desired Risk:Reward ratios to modify the predicted optimal therapeutic strategy for a given cancer. The program will use a virtual patient database to predict responsiveness to drugs and therapies and rank their predictive effectiveness and has the potential to cover every possible cancer and therapy.

PUBLICATION/PATENT

- International Patent application filed on 10/31/2014 for Drs. Anderson, Robertson-Tessi, Gatenbee and McCash.

CONTACT

Haskell Adler PhD MBA
Senior Licensing Manager
Haskell.Adler@Moffitt.org
(813) 745-6596

LICENSING OPPORTUNITY

