

New Technology for Rational Drug Design & Development

Present Reality

- Less than 5 % of promising drug candidates finds their way to market.
- The average cost of bringing a drug to market is ~\$900 million.
- 90% of drugs produce a desired clinical response in only 20-50% of patients.
- Undesirable effects of drugs (Adverse Drug Reactions -ADRs) in North America affect more than two million people annually with a mortality of ~100,000.

Current Needs

- Recognizing variations of drug response among patients. It is estimated that more than 70% of gene expression involves splice variations, resulting in protein target variations.
- Identifying the prevalence of each of these variations in 'normal' and patient population.
- Accurate prediction of the target structure for drug design.
- Designing follow through tests prior to specific drug treatment that accurately identify a particular patient as likely to respond to a specific drug – the new world of Personalized Medicine.

The value of MultiGEN Technology in addressing these needs

- MultiGEN Technology is the only technology that can generate relevant data for accurate prediction of target structures. The methodology is well described in the accompanying paper published in Genetic Engineering News.

At the present time there is relatively little emphasis given in drug development to identifying the variations of the target protein in a specific patient population. Failure to correctly determine such variation (beyond Phase II clinical trials) is counter productive, and may result in the elimination of drug candidates that would otherwise have been successful, while at the same time continuing development with one(s) that are not optimal. It is clearly critical during drug design and development to determine variations of the protein target both in the normal population and patients.

Our novel approach to rational drug design will help to reduce preclinical studies, shorten the lead-time to market and lower the overall cost. Such an approach would also eliminate many ADRs, and significantly contribute towards the realization of Personalized Medicine.

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