THE HONG KONG POLYTECHNIC UNIVERSITY
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Rational Design of Engineered Arginine-depleting Enzyme as Multipotent Anti-cancer Drug

Drug Discovery

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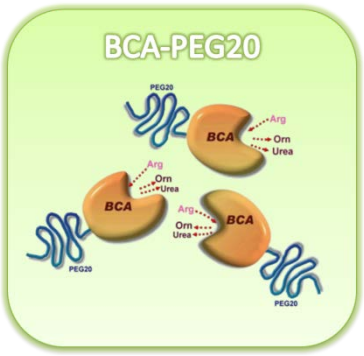
. Multipotent Targeted Therapy for Cancers Auxotrophic for Arginine .
. A Chemo-enhancer to Augment the Effect of Other Chemotherapeutic Agents .

Effective and yet side effect-free cancer therapy is something that has rarely been achieved. We believe we have found a promising strategy that fits these criteria: starvation of tumor cells using enzymes that break down a specific amino acid, arginine, which tumors require in large quantities to support their rapid growth. Without this amino acid, cancer cells rapidly die whilst healthy cells remain relatively unscathed, so the starvation strategy is safer than many of the currently available chemotherapy drugs. We have developed an arginine-degrading enzyme originating from an extreme thermophilic bacterium, namely BCA-PEG20. BCA-PEG20 is safe and effective towards various cancers. Furthermore, we engineered the enzyme for site specific modification to enhance its stability. BCA-PEG20 is now at a stage ready for technology transfer, we hope that our enzymes could one day deliver a ray of hope to cancer patients.



Stage of Research & Development

- Preliminary safety studies optimistic
- Exhibited synergy with currently available chemotherapeutics shown in pre-clinical studies
- Technology ready for knowledge transfer

Representative Publication

Pegylated derivatives of recombinant human arginase (rhArg1) for sustained in vivo activity in cancer therapy: preparation, characterization and analysis of their pharmacodynamics in vivo and in vitro and action upon hepatocellular carcinoma cell (HCC). Sam-Mui Tsui; Wai-Man Lam; Tin-Lun Lam; Hiu-Chi Chong; Pui-Kin So; Sui-Yi Kwok; Simon Arnold; Paul Ning-Man Cheng; Denys N Wheatley; Wai-Hung Lo; and *Yun-Chung Leung. CANCER CELL INTERNATIONAL, v. 9, Article No. 9, 2009, Apr

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