

## Novel Peptide Drug enhancing Immune Response in Patients suffering from Immune Suppression and Leukopenia

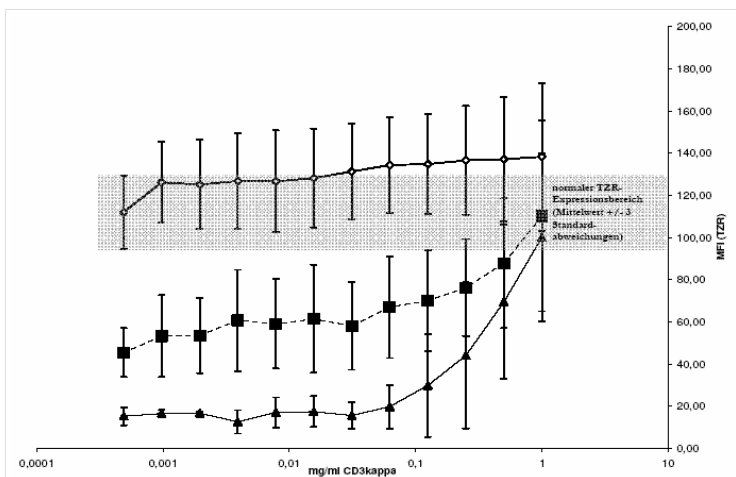
Reference Number: TO 03-00207b

### Challenge

Immune suppression, characterized by T cell defects, is a primary syndrome in patients with HIV/AIDS or chronic leukaemias, but also occurs as a secondary effect in patient upon treatment with cytotoxic compounds e.g. in cancer therapy. While Neutropenia is effectively treated by injection of G-CSF, no therapy exists to date which can specifically restore or enhance long-lasting T cell function.

### Technology

The technology relates to CD3kappa, a novel soluble splice variant of CD3delta, stabilizing T cell receptor (TCR) on cell surfaces. 48 h treatment of PBMC *in vitro* increases TCR expression up to 25-fold. In PBMC from immune suppressed patients, TCR expression is restored back to the normal level under CD3kappa treatment. Besides, the factor modulates cell surface marker expression and induces a long-lasting chemokine- and cytokine secretion. These features support an enhanced antigen-dependent T-cell-activation and a switch to a Th1-directed immune



#### Recovery of TCR expression in CD4+ PBMC upon 24h treatment with CD3kappa.

PBMC from patients with at least 3 week delay of chemotherapy (-○-, N=29), directly after high dose chemotherapy (-□-, N= 15) and conditioned with fludarabine, high dose cyclophosphamide and total-body-irradiation before allogenic stem cell transplantation (-△-, N=6) are shown.

response. Such stabilization of endogenous TCRs positively enhances the immune status of immune suppressed individuals. As a peptide naturally present in activated T lymphocytes the peptide will not be immunogenic per se. Furthermore, CD3kappa can easily be synthesized with solid phase peptide synthesizers and is therefore perfectly suited for in vivo applications, escaping the tremendous regulations which must be fulfilled with recombinant pharmaceuticals.

### Commercial Opportunity

Exclusive in-licensing opportunity for the clinical drug development

### Patent Situation

An international patent application (WO 2007/147630) is pending.

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