Comparative drugability evaluation of MOR opioid peptides in functional brain research

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Eight MOR (μ-opioid receptor) peptides, six agonists and two antagonists, are comparatively evaluated in the mouse model for brain influx (multiple time regression and capillary depletion), brain efflux and metabolic stability in brain tissue as well as in plasma [1].

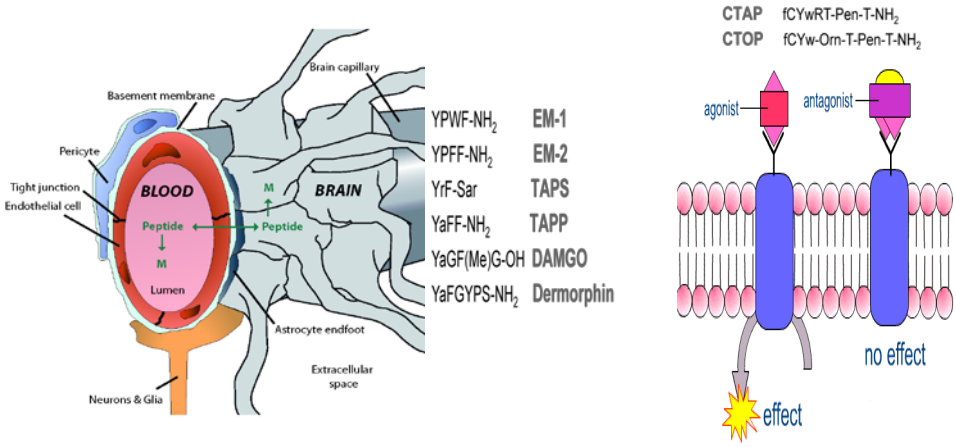

Figure 1. Blood Brain Barrier (left) and investigated MOR peptides (right)

Using these four individual responses d_i, a global desirability function D was created as follows:

$D = \sqrt[n]{\prod_{i=1}^{n} d_i^{p_i}}$, where p_i is a weighing factor attributed to the individual responses. Dermorphin yielded the highest D-value, indicating this peptide possessed the highest drugability characteristics compared to the other investigated peptides. In-vivo medical imaging confirmed the above D-based conclusions, and allowed a refinement of the weighing factors p_i.

References

1. S. Van Dorpe, A.Adriaens, I. Polis, K. Peremans, J. Van Bocxlaer, B. De Spiegeleer. Peptides (2010) doi:10.1016/j.peptides.2010.03.029.