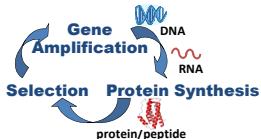


Utilization of neurotoxin-inspired peptide library in *in-vitro* evolution: proved pluripotency to target GPCRs, proteases and trophic factors



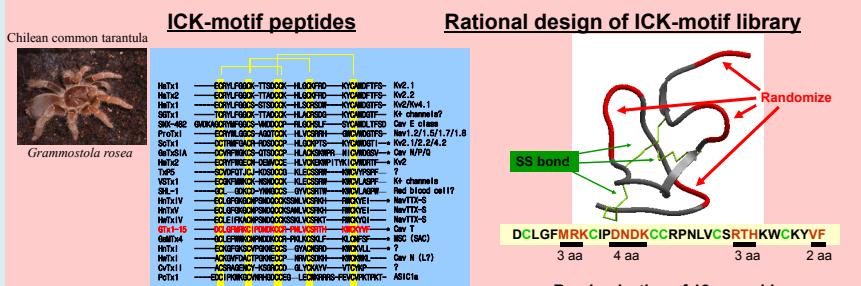
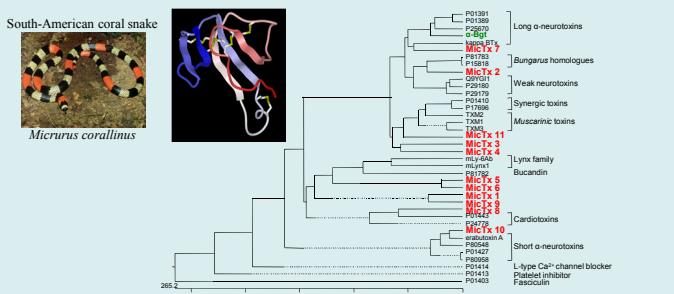
○ Tai KUBO, Mohammed NAINUDDIN, Seigo ONO, Takatsugu HIROKAWA

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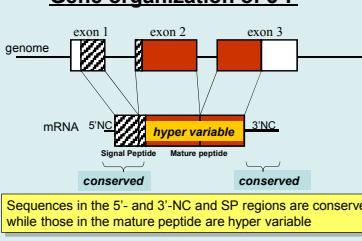
Advanced Institute of
Industrial Science and Technology
AIST

1. Peptide libraries from Three-finger neurotoxins and ICK toxins, which evolved in accelerated mode

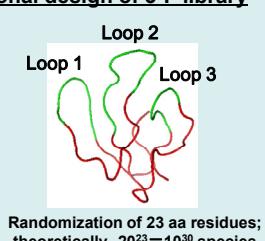


1. Conservation of Cys residues and S-S configurations
2. Sequence diversity in the inter-cysteine intervals
3. Diversity in target molecules

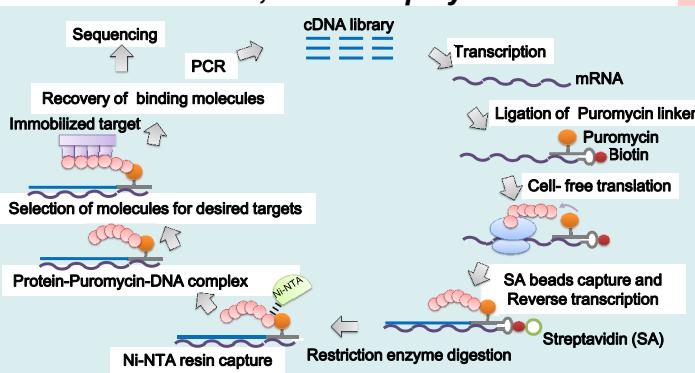
Gene organization of 3-F



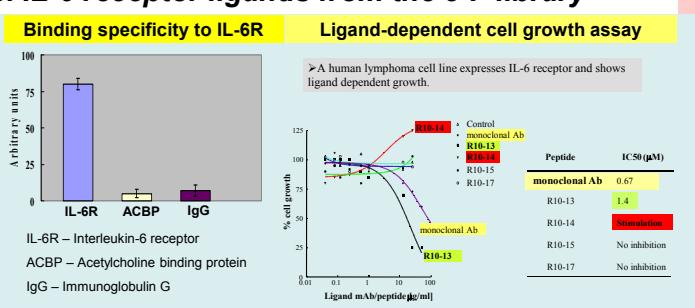
Rational design of 3-F library



2. In vitro evolution; cDNA display method



3. IL-6 receptor ligands from the 3-F library



6. m2 receptor binding peptides selected by the PERISS

Evaluation of the mAChR 2 targeted peptides

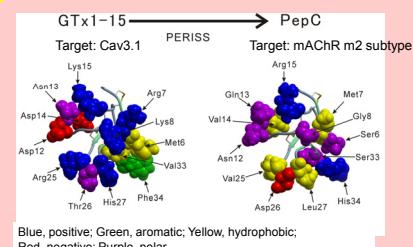
(after 6 rounds of selection)

Binding affinity to m2 receptor

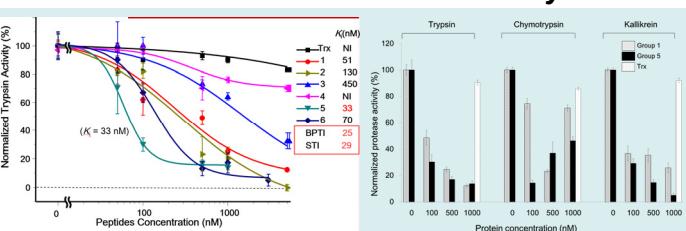
Peptide	Inhibition (%)	Conc. (µM)
R6-A1	54.6	6.0
R6-A2	46.0	5.4
R6-C	37.6	0.37

Subtype selectivity of the peptide R6-C

	Inhibition (%)	Conc. (nM)
m1	6.0	438
m2	37.6	365
m3	10.4	438
m 4	6.2	438

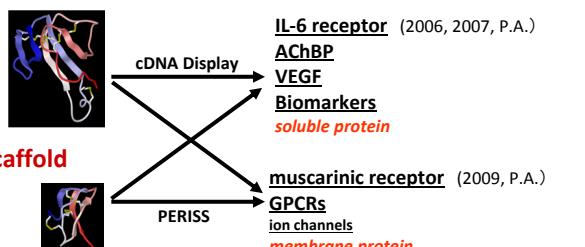


4. Protease inhibitors from the 3-F library



7. Utilization of pluripotent peptide library in *in-vitro* evolution to generate target specific binders/ligands

Three-finger (3F) scaffold



References

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Grants: Grant for Industrial Research 04A02542a from NEDO (Japan), Grant for Priority Research Program from AIST (Japan)