Coiled-coil Peptides to Promote the Death of Cancer Cells
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BCL-2 Family Proteins, Cell Death and Cancer

BCL-2 proteins are unnaturally abundant in cancer and prevent the death of tumor cells.

Mimicking Nature’s Resolution Peptides

Finding stabilizing interactions and altering the structure of the peptide scaffold.

How does changing the mimicked sequence and the scaffold type affect binding?

Peptide Library

Concluding the Expected Interaction

Using a high (MS) and low (FIDA) resolution technique to observe designed interaction.

Confirming the Expected Interaction

MCL-1 protein alone

Peptide Tm Theo. Tm Complex Exp. Tm Complex AT Exp. vs Theo

53 56 67 +12 Di-S
48 50 71 +21 Di-E1
30 60 73 +13 Tri-E1
-63 71 +8 Tet-E1
-64 78 +14 Pent-E1
-66 85 +19 mono-E1
71 63 68 +5 Di-A:Di-B-S

References:

Conclusions

- Stabilizing interactions bind target cancer protein regardless of scaffold
- Inclusion of stabilizing interactions does not prevent scaffold folding
- Scaffolds can recruit multiple copies of target cancer protein (multivalent)
- Scaffolds and target cancer protein interact in the designed manner