



Termoforesi su microscala: versatilità nella caratterizzazione di interazioni molecolari

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Computer-assisted Molecular Design

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NextGenerationEU



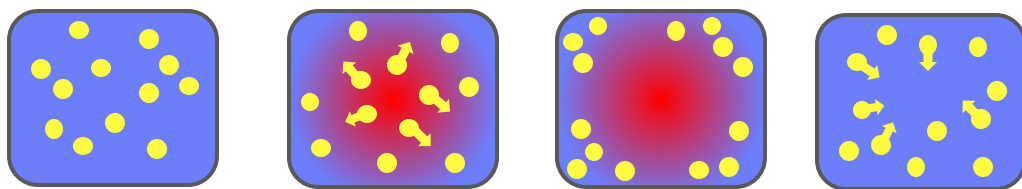
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DI RIPRESA E RESILIENZA

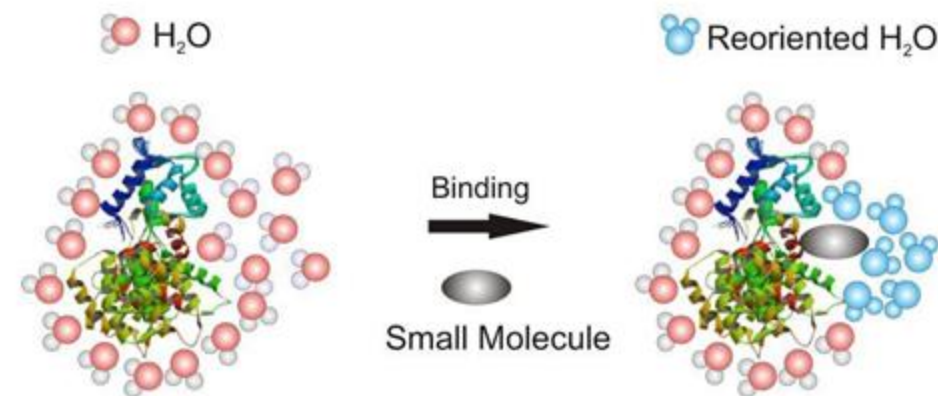
MicroScale Thermophoresis (MST)

La **termoforesi** è il movimento direzionato delle molecole indotto da gradienti di temperatura.



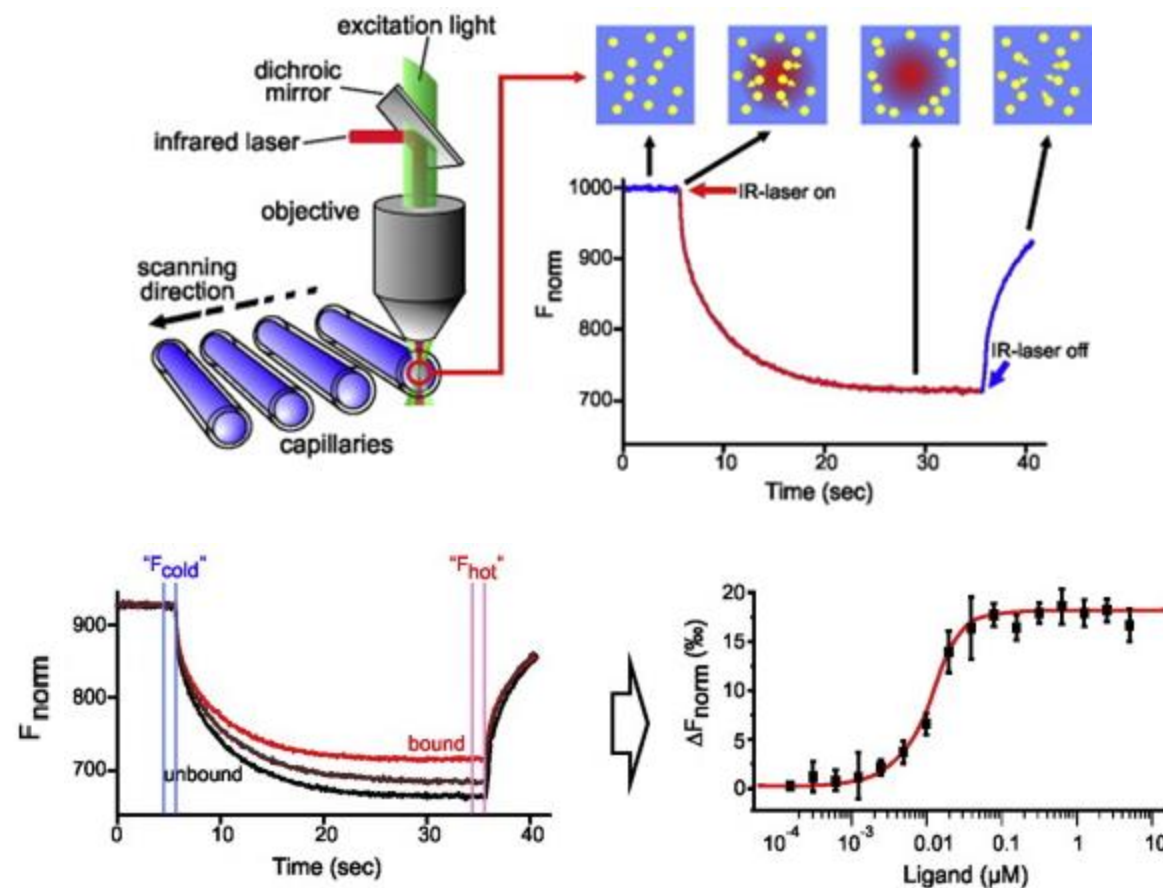
Le proprietà termoforetiche di una molecola sono determinate da:

- **carica**
- **dimensione**
- **sfera di idratazione**





Il movimento termoforetico della molecola marcata con fluorescenza viene misurato monitorando la distribuzione della fluorescenza F all'interno di una capillare.





Compatibile con numerosi sistemi di marcatura:

- Cisteina
- Lisina
- His-tag
- Fc umano



	Monolith X Monolith X is equipped with Spectral Shift and MST technologies and provides you high quality data with little to no assay development.	Monolith Monolith comes with MST and enables you to measure high affinity interactions in the pM range, work label-free, or use GFP-tagged proteins.
Technology	Spectral Shift and MST	MST
Time it takes to get a K_d	Under 10 minutes	
Dynamic range	nM to mM	pM to mM
Detected molecule range	10^3 – 10^7 Daltons	
Minimum sample volume measured	10 μ L	
Samples per run	Up to 24	
Temperature control	20–40 °C +/- 0.5 °C (actively controlled)	
Fluorescent channels	1 / RED	1 / pico RED or 2 / pico RED & LabelFree (UV) or 2 / pico RED & BLUE
Dimensions	36 cm W x 40 cm H x 58 cm D (71 cm D with drawer open)	
Weight	27 kg	

Monolith is made for collecting reproducible, reliable data without using a lot of material



High signal:noise for all interactions

Spot poor results quickly with clear software guidance



Immobilization-free measurements

Measure your affinities with targets free in solution



Broad affinity Range

Find affinities from the nM to mM range



Low sample consumption

Requires ng of target at nM concentrations

Tackle a wide variety of **challenging targets** **and ligands** with the same instrument



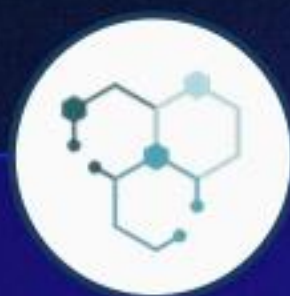
Membrane
proteins



Intrinsically
disordered
proteins (IDPs)



Proteolysis
targeting
chimeras
(PROTACs)



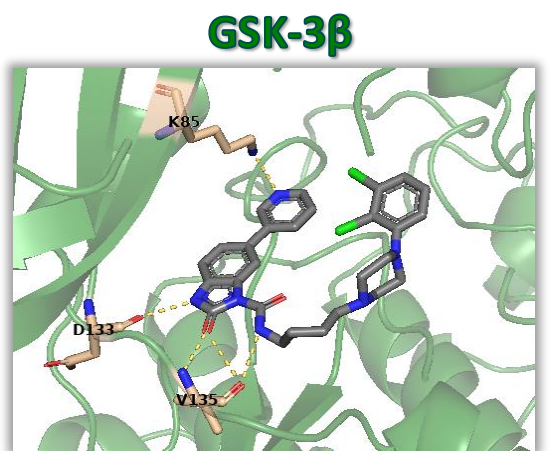
Small Molecules



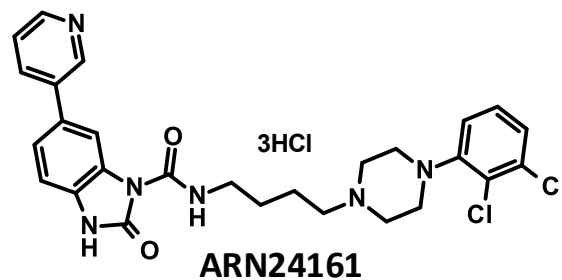
Nucleic Acid



Protein-Protein
interactions

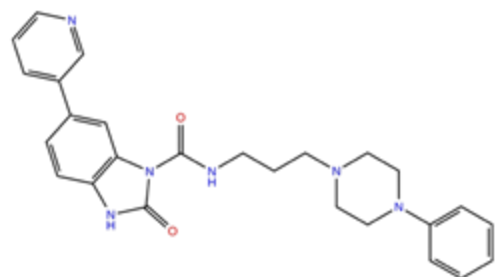
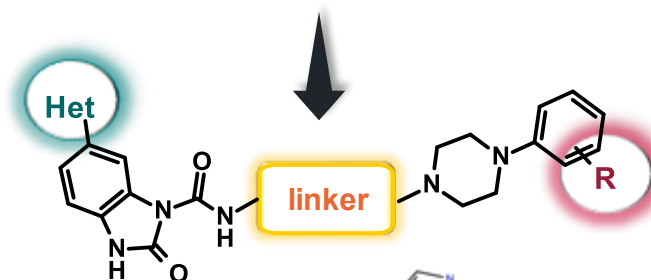


X-ray structure of GSK-3 β with ARN24161.

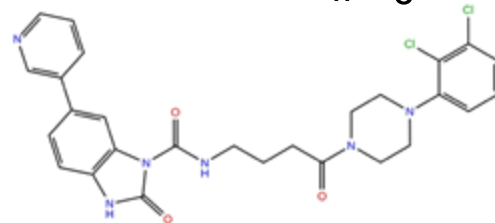


D3R: EC₅₀ = 10.1 nM (26.3% Eff.)

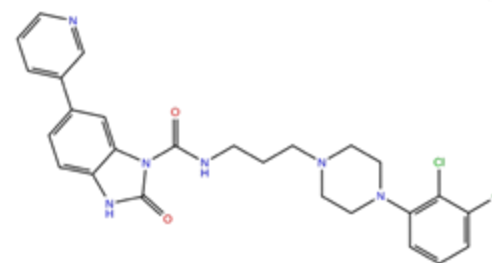
GSK-3 β : IC₅₀ = 561 nM



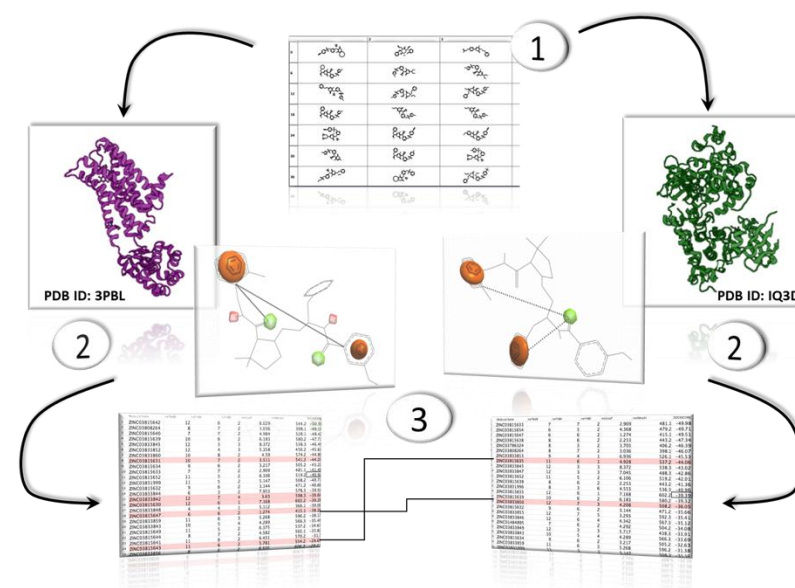
ARN25657
IC₅₀ 19.7 nM



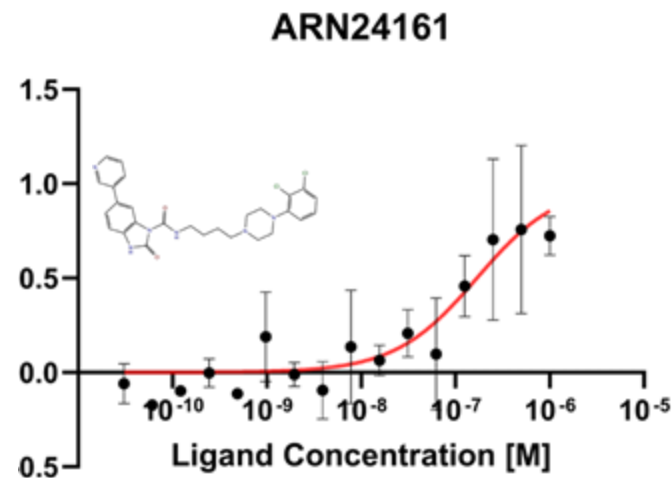
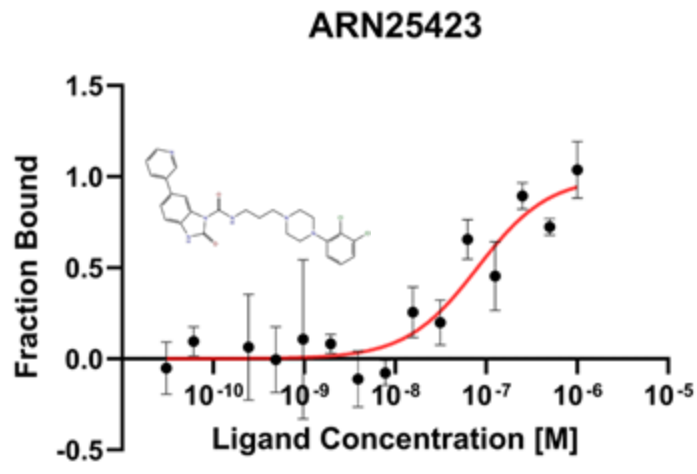
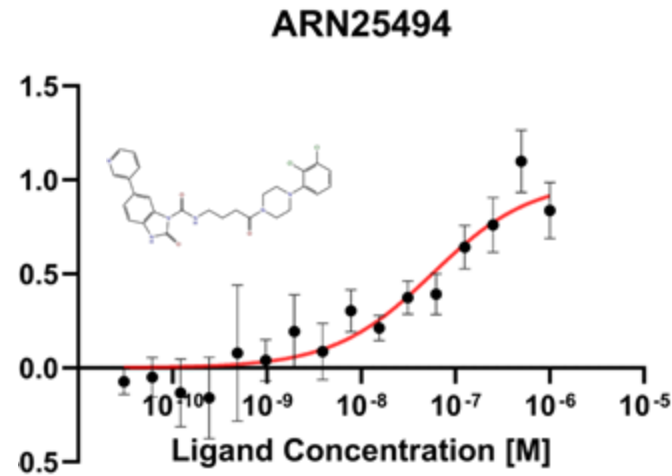
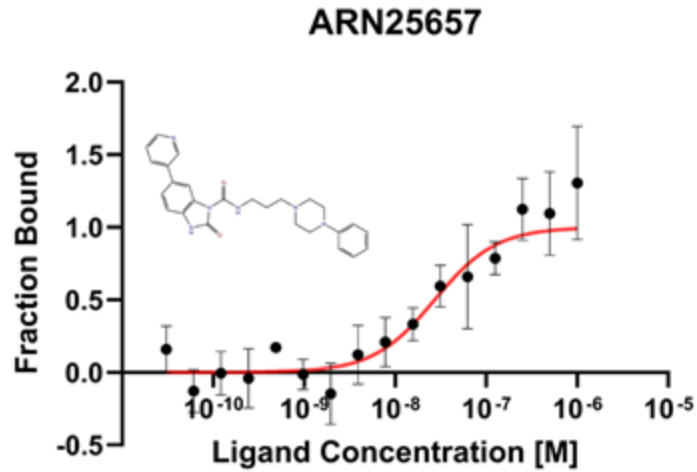
ARN25494
IC₅₀ 69.3 nM



ARN25423
IC₅₀ 123 nM



GSK3 β - Kd Determination



MOL	Kd [nM]	IC50 [nM]
ARN25657	27.15	19.7
ARN25494	56.56	69.3
ARN25423	80.13	123
ARN24161	168.9	561

Lembo V., Veronesi M., Girotto S.



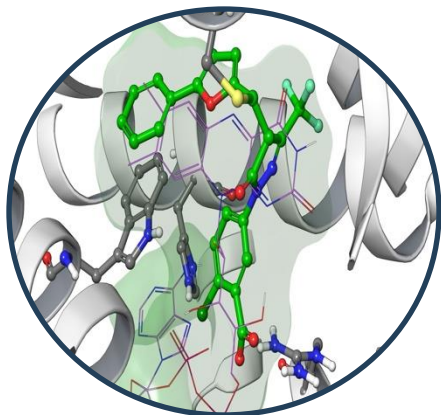
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Inibitori ERO-1 (M65 1.3)

Retini M.
Zito E.

**Target
Confidenziale**

Hit Expansion (M65 1.3)

Favi GF.
Crinelli R.
Vanzolini T.

Grazie per l'attenzione