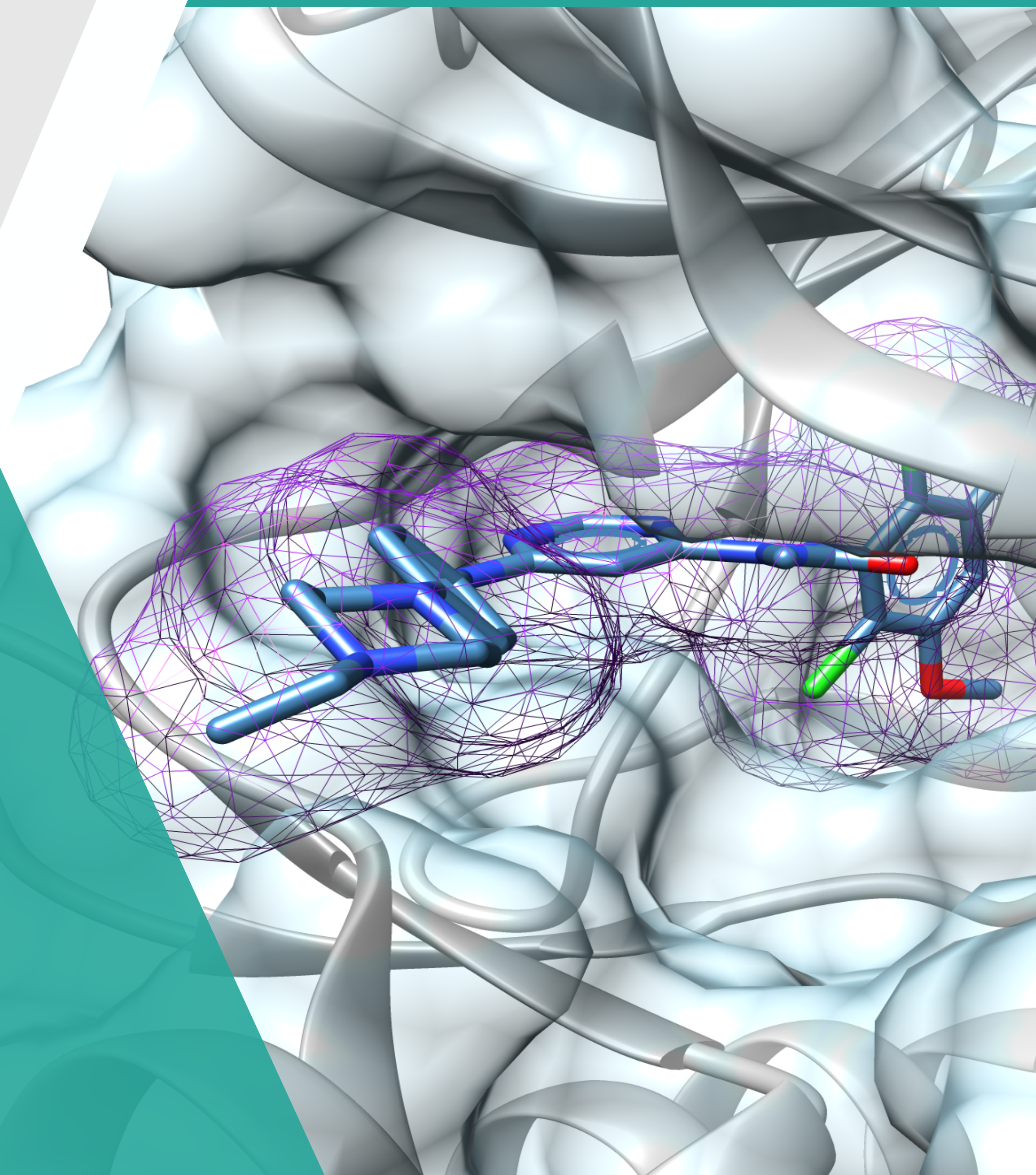


HIT DISCOVERY IN 8 WEEKS

Full support from virtual screening
to wet assays



CHEMSPACE DISCOVERY SERVICES: ADVANTAGES

- Hit discovery in 8 weeks: full cycle in one place
- V-SYNTHES: Ultra-large virtual screening using fragment-based approach
- Well-established workflow with assistance at all stages
- Delivery of compounds guaranteed
- Full support on the stage of hit explanation:

-Analogues out of off-the-shelf compounds, REAL compounds, and Freedom compounds

-Custom chemical spaces around hit molecules built on the available building blocks and validated reactions

AVAILABLE CHEMICAL SPACES



Enamine xREAL
173B



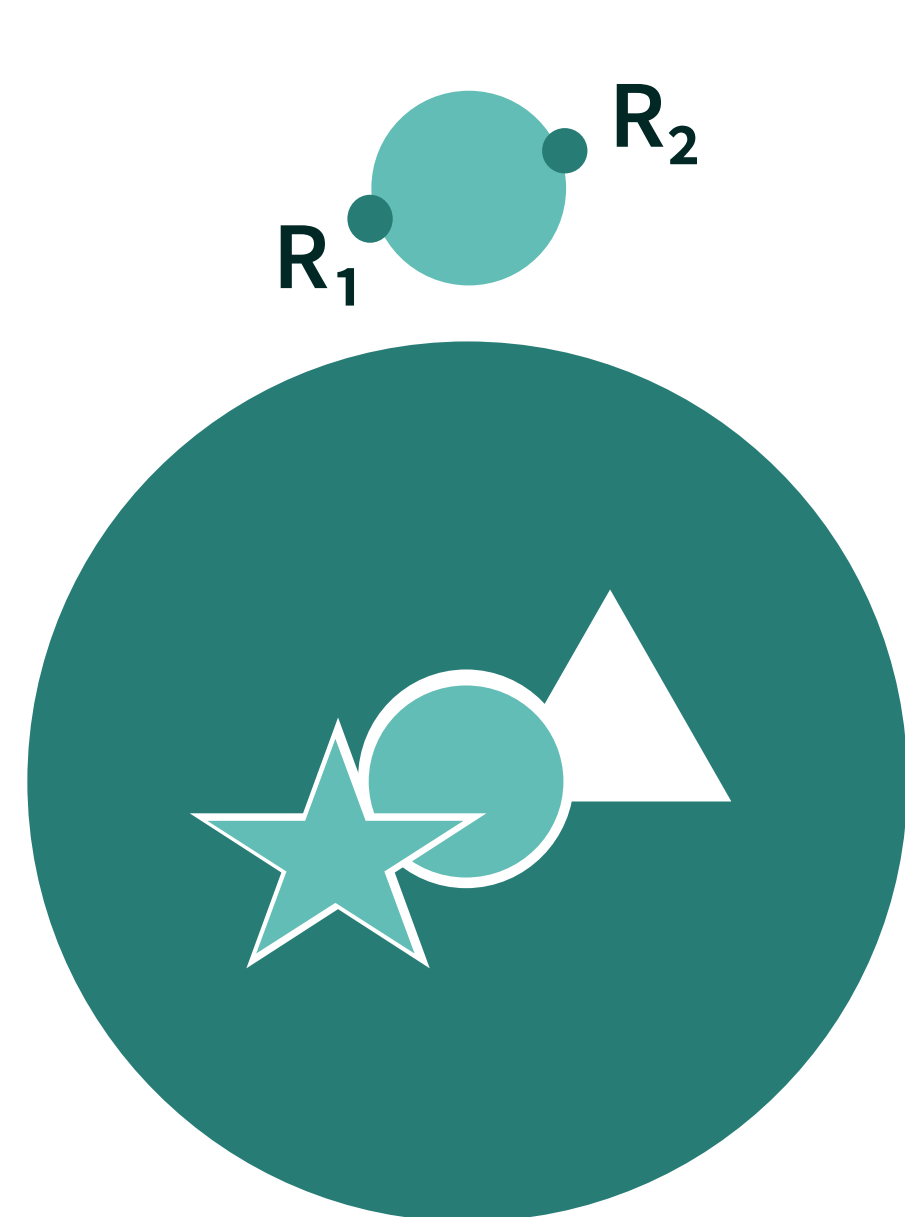
Freedom Space
5B



In-Stock compounds
5.5M

V-SYNTHES

The idea: Use of chemical modularity of Enamine REAL

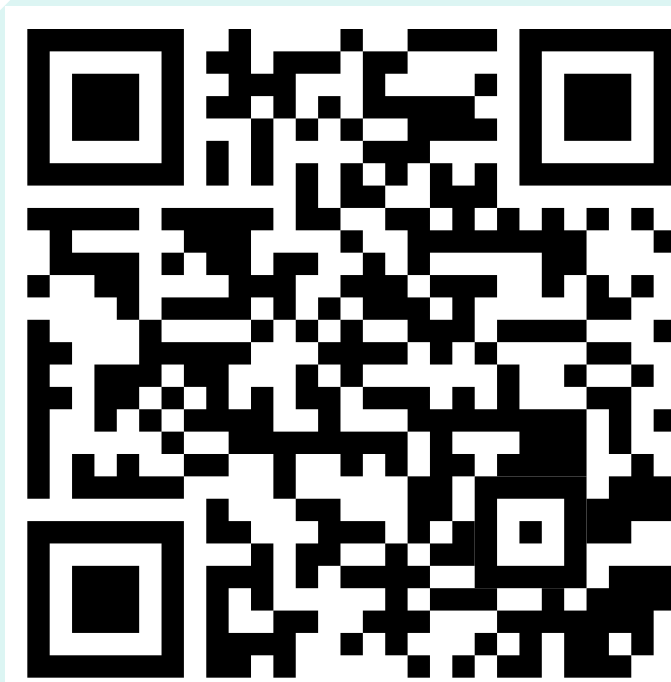
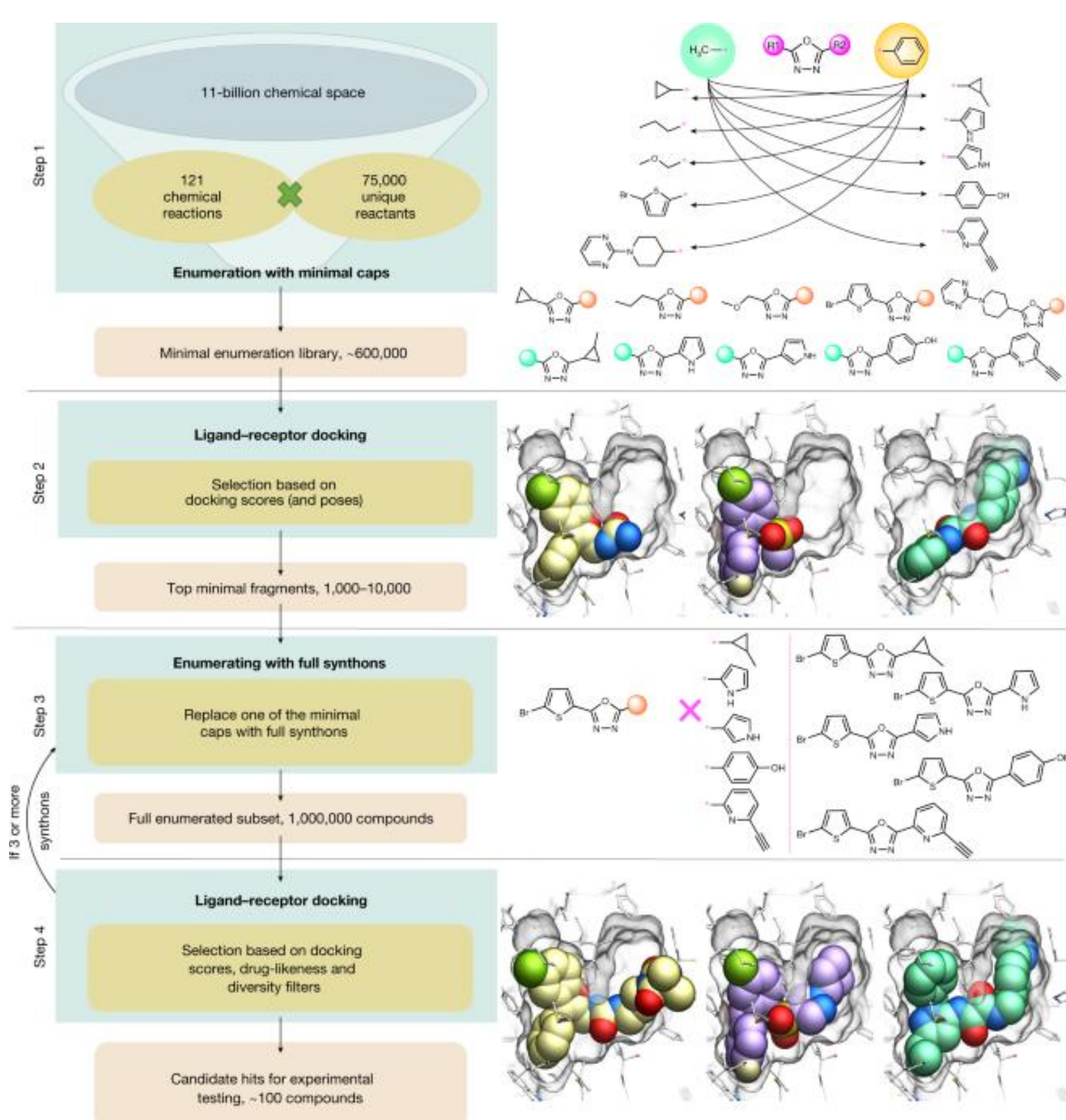


$$N_{\text{dock}} = N(R_1) + N(R_2)$$

REAL Space Synthons

- No need of full enumeration
- Thousands of times less computational resources
- The same docking accuracy as for classical virtual ligand screens

Large-Scale Fragment-Based Virtual Screening



Nature 601, 452-459 (2022)

CASE STUDY

Target: CB2R in complex with an antagonist (PDB: 5ZTY)

75x faster!

V-
SYNTHES

REAL Space 11B

Docked 1.5M compounds

Synthesized and tested: 60 hits

$K_i < 10\mu\text{M}$: 20 compounds (33%)

$K_i < 1\mu\text{M}$: 14 compounds (23%)

Best $K_i < 180\mu\text{M}$

Classical
VLS

REAL Space, a 0.68B subset

Docked: 115M compounds

Synthesized and tested: 95 hits

$K_i < 10\mu\text{M}$: 14 compounds (15%)

$K_i < 1\mu\text{M}$: 4 compounds (4%)

Best $K_i < 260\mu\text{M}$

WORKFLOW

Chemscape In-
Stock catalog,
5.5M

Freedom
Space, 5B

Enamine xREAL
Space, 173B

Classical VLS/V-
SYNTHES
50-200 hits

Sourcing of compounds
Delivery of building
blocks
Synthesis of the hits by
CRO(s)

WET SCREENING