

Drug search
space

Digital representation
for drug chemical
compound

n -qubits

Quantum search

Grover's algorithm,
quadratic speedup

Pointer

Drug compound
generation

Blind & outsourced
 $\hat{U}_{\text{oracle}}|i\rangle|0\rangle^{\otimes n} \rightarrow |i\rangle|\psi_i\rangle_{\text{drug}}^{(n)}$

Description

Hamiltonian
simulation

$\hat{H}|\psi(t)\rangle = i\hbar\frac{\partial}{\partial t}|\psi(t)\rangle$
Exponential speedup

Score

Drug candidate

Encrypted
(blind or homomorphic)