Table S1. Top ten FDA drugs from virtual screening on active site of TIM*Eh*.

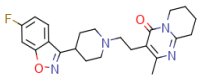
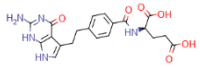
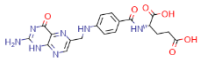
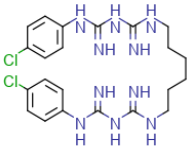
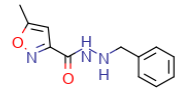
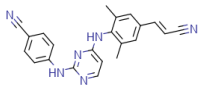
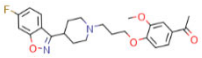
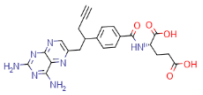
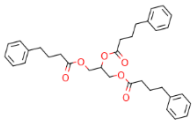
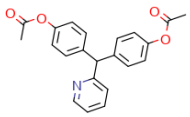
Compound	Structure	Docking score (Kcal/mol)	Description
Risperidone		-7.5	Antipsychotic.
Pemetrexed		-7.0	Chemotherapy.
Folic Acid		-6.9	Supplementation agent.
Chlorhexidine		-6.8	Broad-spectrum antimicrobial.
Isocarboxazid		-6.8	Treatment of major depression.
Rilpivirine		-6.8	Treatment of HIV-1 infections.
Iloperidone		-6.7	Antipsychotic.
Pralatrexate		-6.7	Treatment of relapsed or refractory peripheral T-cell lymphoma.
Glycerol phenylbutyrate		-6.7	Therapy for chronic management of patients with urea cycle disorders.
Bisacodyl		-6.7	Prescribed for constipation and neurogenic bowel dysfunction.

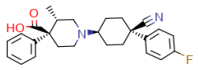
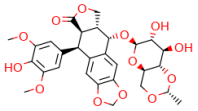
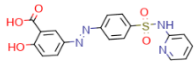
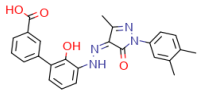
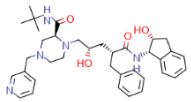
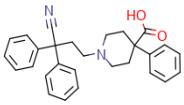
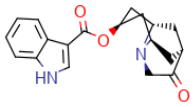
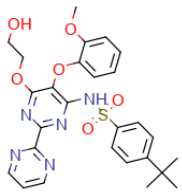
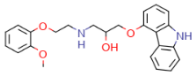
Table S2. Interaction profile of top ten compound from virtual screening on TIM*Eh*.

Compound	Interactions		
Risperidone	1 x hphobic Trp75(B)	1 x hphobic His110(B)	1 x hbond Gln115(B)
	1 x hphobic Ile108(A)	2 x hphobic Gln115(B)	1 x pistack His110(A)
Pemetrexed	1 x hphobic Trp75(A)	1 x hbond Lys77(B)	1 x hbond Lys119(B)
	1 x hphobic Ile108(B)	1 x hbond His110(B)	1 x sbridge His110(B)
	2 x hphobic Phe109(A)	1 x hbond Glu111(B)	1 x sbridge Lys119(A)

	1 x hphobic Phe109(B)	1 x hbond Gln115(A)	2 x pistack Trp75(B)
	1 x hphobic His110(B)	2 x hbond Gln115(B)	
Folic Acid	1 x hphobic Phe109(B)	1 x hbond Phe109(B)	2 x hbond Gln115(B)
	1 x hphobic His110(A)	1 x hbond His110(A)	1 x sbridge His110(B)
	1 x hbond Lys77(B)	1 x hbond His110(B)	1 x pistack Trp75(B)
	1 x hbond Ile108(B)	1 x hbond Gln115(A)	
Chlorhexidine	1 x hphobic Tyr81(A)	2 x hphobic Gln115(B)	1 x hbond Gln115(A)
	1 x hphobic Ile108(B)	1 x hbond Ile108(A)	1 x hbond Gln115(B)
	1 x hphobic Phe109(B)	1 x hbond His110(B)	1 x pistack Trp75(B)
	1 x hphobic His110(A)		
Isocarboxazid	1 x hphobic Trp75(B)	1 x hbond Lys77(B)	2 x hbond Gln115(B)
	1 x hphobic His110(B)	1 x hbond Phe109(B)	1 x pistack His110(A)
	1 x hphobic Lys119(B)		
Rilpivirine	1 x hphobic Ile108(A)	1 x hphobic His110(B)	2 x hbond Gln115(B)
	2 x hphobic Phe109(A)	1 x hbond Ile108(B)	1 x pistack His110(A)
Iloperidone	1 x hphobic Trp75(B)	1 x hphobic His110(B)	1 x hbond Gln115(B)
	1 x hphobic Ile108(A)	2 x hphobic Gln115(B)	1 x hbond Lys119(B)
	2 x hphobic Phe109(A)	1 x hphobic Lys119(B)	
Pralatrexate	1 x hphobic Trp75(B)	1 x hphobic Gln115(B)	1 x hbond Gln115(B)
	1 x hphobic Phe109(A)	1 x hbond His110(A)	1 x sbridge His110(B)
	1 x hphobic His110(B)	1 x hbond Glu111(A)	1 x sbridge Lys119(A)
	1 x hphobic Glu111(B)	1 x hbond Gln115(A)	

Glycerol	2 x hphobic Trp75(B)	1 x hphobic Phe109(A)	2 x sbridge His110(A)
	1 x hphobic Tyr81(B)	1 x hphobic His110(B)	1 x sbridge His110(B)
phenylbutyrate	1 x hphobic Arg106(B)	1 x hphobic Glu111(B)	1 x pistack Trp75(B)
	3 x hphobic Ile108(A)	1 x hphobic Gln115(B)	
Bisacodyl	1 x hphobic Trp75(B)	1 x hphobic Glu111(B)	1 x hbond Gln115(B)
	1 x hphobic Phe109(A)	1 x hphobic Gln115(B)	1 x sbridge Lys77(B)
	2 x hphobic Phe109(B)	1 x hphobic Lys119(B)	1 x sbridge His110(B)
	1 x hphobic His110(B)	1 x hbond Gln115(A)	1 x sbridge Lys119(B

Table S3. Top ten compound from virtual screening on TIM*Gl*.

Compound	Structure	Docking score (Kcal/mol)	Description
Levocabastine		-9.5	Used for allergic conjunctivitis.
Etoposide		-9.4	Antitumor activity.
Sulfasalazine		-9.3	Management of inflammatory bowel diseases.
Eltrombopag		-9.3	Treatment of low blood platelet counts in adults with chronic immune thrombocytopenia.
Indinavir		-9.2	Treatment of HIV-1 infections.
Difenoxin		-9.0	Treatment of diarrhea.
Dolasetron		-8.9	Antinauseant and antiemetic agent.
Bosentan		-8.7	Treatment of pulmonary hypertension.
Carvedilol		-8.7	Treatment of heart failure and hypertension.

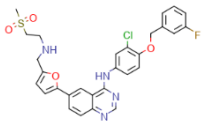
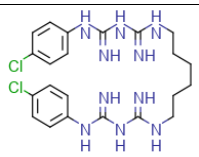
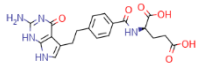
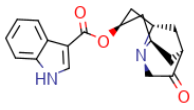
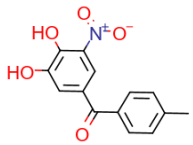
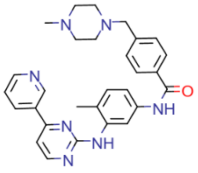
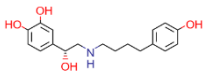
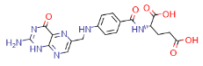
Lapatinib		-8.7	Chemotherapy agent.

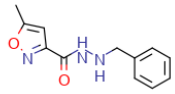
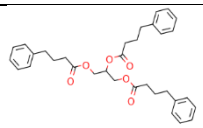
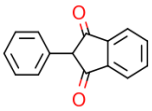
Table S4. Interaction profile of top ten compound from virtual screening on TIM*Gl*.

Compound	Interactions		
Levocabastine	1 x hphobic Tyr68(A)	1 x hphobic Gln109(A)	1 x hbond Lys113(B)
	1 x hphobic Tyr68(B)	1 x hphobic Gln109(B)	1 x sbridge Arg99(A)
	1 x hphobic Leu69(A)	1 x hbond Glu105(B)	1 x sbridge Lys113(A)
	1 x hphobic Leu69(B)		
Etoposide	1 x hphobic Tyr68(A)		1 x hbond Gln109(B)
	1 x hphobic Leu69(A)	1 x hbond Glu78(B)	1 x hbond Lys113(A)
	1 x hphobic Gln109(A)	1 x hbond Arg99(A)	1 x sbridge Arg99(B)
	1 x hbond Tyr68(A)	1 x hbond Arg99(B)	1 x sbridge Lys113(A)
	1 x hbond Tyr68(B)	1 x hbond Ile102(A)	1 x sbridge Lys113(B)
Sulfasalazine	1 x hphobic Tyr68(A)	1 x hphobic Gln109(A)	1 x hbond Arg99(B)
	2 x hphobic Leu69(A)	1 x hbond Tyr68(A)	1 x hbond Met103(A)
	1 x hphobic Met103(B)	1 x hbond Glu70(A)	1 x pication Arg99(B)
	1 x hphobic Glu105(B)	1 x hbond Arg99(A)	
Eltrombopag	1 x hphobic Tyr68(A)	1 x hphobic Glu105(B)	1 x hbond Glu78(B)
	1 x hphobic Leu69(A)	1 x hphobic Gln109(A)	1 x hbond Arg99(B)
	2 x hphobic Leu69(B)	1 x hphobic Gln109(B)	1 x hbond Gln109(A)
	1 x hphobic Met103(A)	1 x hbond Tyr68(A)	1 x pistack Tyr68(B)
	1 x hphobic Glu105(A)	1 x hbond Glu78(A)	1 x pication Lys113(B)
Indinavir	1 x hphobic Tyr68(B)	1 x hphobic Glu105(B)	1 x hbond Met103(A)
	1 x hphobic Met103(B)	1 x hbond Tyr68(B)	1 x hbond Gln109(A)
	1 x hphobic Glu105(A)	1 x hbond Arg99(A)	2 x hbond Gln109(B)
Difenoxin	1 x hphobic Tyr68(A)	1 x hphobic Gln109(B)	1 x sbridge Glu78(B)
	1 x hphobic Leu69(A)	1 x hbond Arg99(B)	1 x sbridge Arg99(B)
	1 x hphobic Leu69(B)	1 x hbond Met103(B)	1 x sbridge Lys113(B)
	1 x hphobic Glu105(A)	1 x hbond Glu105(B)	1 x pistack Tyr68(B)
	2 x hphobic Gln109(A)		
Dolasetron	1 x hphobic Tyr68(A)	2 x hphobic Glu105(B)	1 x sbridge Arg99(A)
	1 x hphobic Tyr68(B)	1 x hbond Tyr68(A)	1 x sbridge Arg99(B)
	1 x hphobic Glu105(A)	1 x hbond Arg99(B)	
Bosentan	1 x hbond Glu78(B)	1 x hbond Met103(B)	1 x hbond Lys113(B)
	2 x hbond Arg99(A)	1 x hbond Glu105(B)	1 x pistack Tyr68(A)

	1 x hbond Arg99(B)	1 x hbond Gln109(A)	
Carvedilol	1 x hphobic Tyr68(A) 1 x hphobic Met103(A) 1 x hphobic Glu105(B) 1 x hbond Glu78(A)	1 x hbond Arg99(A) 1 x hbond Arg99(B) 1 x hbond Gly104(A)	2 x hbond Gln109(A) 1 x hbond Gln109(B) 1 x pication Arg99(A)
Lapatinib	1 x hphobic Tyr68(A) 1 x hphobic Tyr68(B) 1 x hphobic Leu69(A)	1 x hphobic Leu69(B) 1 x hphobic Glu105(B) 2 x hbond Arg99(B)	1 x hbond Met103(A) 1 x hbond Glu105(B) 1 x hbond Lys113(B)

Table S5. Top ten compounds selected from virtual screening against both TIM*Eh* and TIM*Gl*.

Compound	Structure	Docking score (Kcal/mol)	Description
Clorhexidine		-6.8[1] -8.3[2] -7.6[3]	Broad-spectrum antimicrobial.
Pemetrexed		-7.0 -8.0 -7.5	Chemotherapy.
Dolasetron		-6.0 -8.9 -7.5	Antinauseant and antiemetic agent.
Tolcapone		-6.3 -8.5 -7.4	Treatment of Parkinson´s disease.
Imatinib		-6.7 -8.1 -7.4	Chemotherapy.
Arbutamine		-6.4 -8.3 -7.4	Cardiac stimulant.
Folic acid		-6.6 -7.9 -7.3	Supplementation agent.
Isocarboxazid		-6.8	Treatment of major depression.

		-7.5 -7.2	
Glycerol phenylbutyrate		-6.9 -7.5 -7.2	Therapy for chronic management of patients with urea cycle disorders.
Phenindione		-6.5 -7.7 -7.1	Anticoagulant.

[1] TIM*Eh* value
[2] TIM*Gl* value
[3] Mean value

Table S6. ADMET characteristics of selected compounds. Available at: https://go.drugbank.com/

Compound	Absorption	Mechanism of action	Metabolism	Route of elimination	Toxicity
Chlorhexidine	Orally administered chlorhexidine is very poorly absorbed from the gastrointestinal.	Disrupt microbial cell membranes.	Unlikely to undergo metabolic conversion to any significant extent.	Exclusively via the feces.	The LD50 of subcutaneously administered chlorhexidine in mice is >5 g/kg.
Imatinib	Well absorbed with mean absolute bioavailability is 98% and maximum plasma levels achieved within 2-4 hours of dosing.	Inhibits the Bcr-Abl tyrosine kinase.	Primarily hepatic via CYP3A4.	81% of the dose is eliminated within 7 days, 68% in feces and 13% urine.	The most frequently reported adverse reactions (>30%) were edema, nausea, vomiting, muscle cramps, musculoskeletal pain, diarrhea, rash, fatigue and abdominal pain.
Folic acid	Rapidly absorbed from the small intestine, primarily from the proximal portion.	Folic acid congeners are transported across cells by receptor-mediated endocytosis where they are needed to	Folic acid is metabolized in the liver into the cofactors dihydrofolate (DHF) and tetrahydrofolate (THF) by the	After a single oral dose of 100 mcg of folic acid in a limited number of normal adults, only a trace	IPR-MUS LD50 85 mg/kg IVN-GPG LD50 120 mg/kg IVN-MUS LD50 239 mg/kg IVN-RAT LD50 500 mg/kg

		maintain normal erythropoiesis, synthesize purine and thymidylate nucleic acids, interconvert amino acids, methylate tRNA, and generate and use formate.	enzyme dihydrofolate reductase (DHFR).	amount of the drug appeared in the urine.	IVN-RBT LD50 410 mg/kg
Tolcapone	Rapidly absorbed (absolute bioavailability is about 65%)	The precise mechanism of action of tolcapone is unknown, but it is believed to be related to its ability to inhibit COMT	The main metabolic pathway of tolcapone is glucuronidation	Almost completely metabolized prior to excretion, with only a very small amount (0.5% of dose) found unchanged in urine.	LD50 = 1600 mg/kg (Orally in rats)

```python
import concurrent.futures
import os
import time
import glob
import sys

molecules_path = sys.arg[1]
list_of_molecules = glob.glob('%s/*'%molecules_path)
config_file = sys.arg[2]

start = time.perf_counter()

def runVina(mol):
    print('Running %s...' % mol)
    out = mol.replace('ligands', 'out_vina')
    os.system('./vina --ligand %s --config %s --out %s' % (mol, config_file, out))

with concurrent.futures.ProcessPoolExecutor() as executor:
    results = [executor.submit(runVina, mol) for mol in list_of_molecules]

    for f in concurrent.futures.as_completed(results):
        print('Done...')
finish = time.perf_counter()
print('Finished in %f seconds' % (finish-start))
```

Figure S1. Python script for docking automatization