**Supplementary File**

**Molecular target prediction and docking of anti-thrombosis compounds and its activation on tissue-plasminogen activator to treat stroke**

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**Table S1.** ADMET properties of the selected ligands

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Properties | Caesalpinine C | Vanillylamine | Caesalpinine A | SABINENE | Terpinen-4-Ol | Dihydrocapsaicin | Dihydrocarveol | BETA-PINENE | CAMPHENE | 3-Carene |
| Pgp - inhibitor# | 0.901 | 0 | 0.118 | 0 | 0.001 | 0.007 | 0 | 0.001 | 0 | 0 |
| Pgp -substrate# | 0.328 | 0.429 | 0.003 | 0 | 0.002 | 0.016 | 0.004 | 0 | 0 | 0 |
| Human Intestinal Absorbtion# | 0.374 | 0.009 | 0.605 | 0.003 | 0.004 | 0.003 | 0.011 | 0.003 | 0.003 | 0.003 |
| Caco-2## | -5.281 | -4.53 | -5.361 | -4.4 | -4.217 | -4.541 | -4.34 | -4.46 | -4.463 | -4.307 |
| BBB# | 0.64 | 0.057 | 0.452 | 0.976 | 0.931 | 0.911 | 0.973 | 0.986 | 0.975 | 0.804 |
| PPB \* | 91.34% | 16.54% | 51.23% | 69.45% | 85.34% | 96.22% | 49.59% | 64.33% | 67.76% | 91.52% |
| CYP1A2- inhibitor# | 0.093 | 0.622 | 0.023 | 0.497 | 0.274 | 0.759 | 0.134 | 0.296 | 0.601 | 0.706 |
| CYP1A2- substrate# | 0.212 | 0.758 | 0.074 | 0.384 | 0.258 | 0.903 | 0.685 | 0.352 | 0.859 | 0.324 |
| CYP2C19- inhibitor# | 0.328 | 0.101 | 0.179 | 0.123 | 0.112 | 0.902 | 0.024 | 0.163 | 0.193 | 0.339 |
| CYP2C19- substrate# | 0.532 | 0.559 | 0.695 | 0.9 | 0.846 | 0.779 | 0.839 | 0.825 | 0.879 | 0.839 |
| CYP2C9- inhibitor# | 0.104 | 0.025 | 0.071 | 0.113 | 0.058 | 0.722 | 0.024 | 0.321 | 0.171 | 0.275 |
| CYP2C9- substrate# | 0.127 | 0.814 | 0.065 | 0.398 | 0.704 | 0.94 | 0.804 | 0.794 | 0.852 | 0.77 |
| CYP2D6- inhibitor# | 0.837 | 0.296 | 0.697 | 0.045 | 0.025 | 0.836 | 0.003 | 0.009 | 0.016 | 0.013 |
| CYP2D6- substrate# | 0.67 | 0.914 | 0.528 | 0.744 | 0.278 | 0.859 | 0.879 | 0.859 | 0.896 | 0.448 |
| CYP3A4- inhibitor# | 0.749 | 0.069 | 0.678 | 0.108 | 0.04 | 0.879 | 0.02 | 0.026 | 0.051 | 0.045 |
| CYP3A4- substrate# | 0.465 | 0.202 | 0.68 | 0.273 | 0.261 | 0.222 | 0.296 | 0.252 | 0.289 | 0.23 |
| Clearance \*\* | 3.856 | 12.017 | 3.913 | 11.198 | 14.345 | 10.66 | 12.601 | 10.097 | 9.346 | 16.061 |
| T 1/2# | 0.588 | 0.895 | 0.197 | 0.194 | 0.447 | 0.856 | 0.367 | 0.107 | 0.077 | 0.132 |
| hERG# | 0.441 | 0.058 | 0.222 | 0.009 | 0.017 | 0.122 | 0.027 | 0.005 | 0.015 | 0.01 |
| DILI# | 0.033 | 0.109 | 0.027 | 0.155 | 0.05 | 0.067 | 0.045 | 0.051 | 0.104 | 0.049 |
| Ames# | 0.021 | 0.069 | 0.012 | 0.029 | 0.007 | 0.051 | 0.026 | 0.005 | 0.004 | 0.004 |
| Carcinogenicity# | 0.057 | 0.151 | 0.028 | 0.305 | 0.688 | 0.04 | 0.449 | 0.042 | 0.194 | 0.147 |
| Rat Oral Acute Toxicity# | 0.538 | 0.881 | 0.15 | 0.088 | 0.025 | 0.036 | 0.039 | 0.028 | 0.025 | 0.035 |
| Skin Sensitivity# | 0.937 | 0.767 | 0.076 | 0.059 | 0.456 | 0.877 | 0.146 | 0.068 | 0.267 | 0.785 |
| Respiratory toxicity# | 0.756 | 0.932 | 0.08 | 0.305 | 0.024 | 0.06 | 0.718 | 0.933 | 0.886 | 0.266 |

#All values are the probability of being 1.

##optimal values – having > -5.15 log unit.

\*Plasma Protein Binding - <90% is optimal.

\*\*Clearance - <5 is low and >15 is high

**Table S2.** Biological activity of ligands predicted using PASS server.

|  |  |  |  |
| --- | --- | --- | --- |
| **Ligand** | **Pa** | **Pi** | **Activity** |
| Caesalpinine C | 0.791 | 0.004 | Antihypoxic |
| 0.764 | 0.011 | Nicotinic alpha4beta4 receptor agonist |
| 0.756 | 0.026 | Nootropic |
|  | 0.396 | 0.158 | Fibrinolytic |
| Vanillylamine | 0.899 | 0.008 | Aspulvinonedimethylallyltransferase inhibitor |
| 0.879 | 0.005 | Feruloyl esterase inhibitor |
| 0.841 | 0.005 | JAK2 expression inhibitor |
| 0.396 | 0.158 | Fibrinolytic |
| Caesalpinine A | 0.809 | 0.005 | Antidyskinetic |
| 0.802 | 0.016 | Gluconate 2-dehydrogenase (acceptor) inhibitor |
| 0.765 | 0.015 | Nicotinic alpha2beta2 receptor antagonist |
| Sabinene | 0.947 | 0.003 | Antieczematic |
| 0.891 | 0.005 | Antineoplastic |
| 0.853 | 0.005 | Antiinflammatory |
| Terpinen-4-Ol | 0.871 | 0.019 | CYP2C12 substrate |
| 0.838 | 0.011 | Antieczematic |
| 0.829 | 0.003 | Carminative |
| 0.729 | 0.014 | Fibrinolytic |
| Dihydrocapsaicin | 0.821 | 0.016 | Acrocylindropepsin inhibitor |
| 0.821 | 0.016 | Chymosin inhibitor |
| 0.821 | 0.016 | Saccharopepsin inhibitor |
| 0.675 | 0.033 | Fibrinolytic |
| Dihydrocarveol | 0.976 | 0 | Carminative |
| 0.912 | 0.001 | Alpha-pinene-oxide decyclase inhibitor |
| 0.912 | 0.004 | Antieczematic |
| Beta-pinene | 0.902 | 0.005 | Antieczematic |
| 0.857 | 0.013 | Testosterone 17beta-dehydrogenase (NADP+) inhibitor |
| 0.846 | 0.011 | CYP2J substrate |
| 0.758 | 0.005 | Cardiovascular analeptic |
| Camphene | 0.882 | 0.006 | Antieczematic |
| 0.873 | 0.01 | Testosterone 17beta-dehydrogenase (NADP+) inhibitor |
| 0.829 | 0.014 | CYP2J substrate |
| 0.816 | 0.004 | Cardiovascular analeptic |
| 3-Carene | 0.878 | 0.009 | Testosterone 17beta-dehydrogenase (NADP+) inhibitor |
| 0.86 | 0.009 | CYP2J substrate |
| 0.863 | 0.021 | CYP2C12 substrate |
| 0.815 | 0.005 | Antidyskinetic |
| 0.646 | 0.048 | Fibrinolytic |