Target Name	Histamine H3 receptor
Target TTD ID	TTDC00079

Target Species	Human
Chemical Type	Arylbenzofuran derivatives
Mode of Action	Antagonist
QSAR Model 1	$pK_{i(human)} = -7.30(\pm2.67) - 1.88(\pm0.30)E_{HOMO} - 0.48(\pm0.07)\log D_{pH\,7.4} + 1.26(\pm0.29)Mor_{19V} - 1.93(\pm0.44)Mor_{30M}$, $n = 58,\ r^2 = 0.754,\ F = 40.7,\ \text{S.E.} = 0.317,\ q^2_{LOO} = 0.71$
QSAR Model 2	$pK_{i(human)} = -7.64(\pm2.62) - 1.90(\pm0.29)E_{HOMO} - 0.48(\pm0.06)\log D_{pH\,7.4} + 1.34(\pm0.26)Mor_{19V} - 1.87(\pm0.41)Mor_{30M}$ $n = 44,\ r^2 = 0.813,\ F = 42.3,\ \text{S.E.} = 0.266$
Molecular Description	Access the following web-servers to compute molecular descriptors: **MoDel** and **e-dragon** The molecular descriptors in the equations are the energy of highest occupied molecular orbital (E_{HOMO}), apparent distribution coefficient at pH 7.4 ($\log D_{pH\,7.4}$) and 3D-MoRSE descriptors (Mor_{19V} and Mor_{30M}) for human data set and $\log D_{pH\,7.4}$, 3D-MoRSE descriptor (Mor_{18U}), MAXDP topological descriptor and fragment- based polar surface area (PSA) for the rat data set. Number of data (n), squared correlation coefficient (r^2), F-value (F) and standard error (S.E.) are model statistics.
Reference	Molecular modeling of histamine H3 receptor and QSAR studies on arylbenzofuran derived H3 antagonists. *Journal of Molecular Graphics and Modelling* 26 (2008) 834–844

Target Species	Rat
Chemical Type	Arylbenzofuran derivatives
Mode of Action	Antagonist
QSAR Model 1	$pK_{i(rat)} = 9.32(\pm0.31) + 0.99(\pm0.19)Mor_{18U} - 0.47(\pm0.07)\log D_{pH7.4} + 0.10(\pm0.04)MAXDP + 0.02(\pm0.003)PSA,$ $n = 58,\ r^2 = 0.840,\ F = 69.8,\ S.E. = 0.288,\ q^2_{LOO} = 0.81$
QSAR Model 2	$pK_{i(rat)} = 9.49(\pm0.41) + 0.80(\pm0.24)Mor_{18U} - 0.56(\pm0.08)\log D_{pH7.4} + 0.10(\pm0.04)MAXDP + 0.02(\pm0.003)PSA,$ $n = 44,\ r^2 = 0.837,\ F = 50.0,\ S.E. = 0.288$
Molecular Description	Access the following web-servers to compute molecular descriptors: **MoDel** and **e-dragon** The molecular descriptors in the equations are the energy of highest occupied molecular orbital (E_{HOMO}), apparent distribution coefficient at pH 7.4 ($\log D_{pH\ 7.4}$) and 3D-MoRSE descriptors (Mor_{19V} and Mor_{30M}) for human data set and $\log D_{pH\ 7.4}$, 3D-MoRSE descriptor (Mor_{18U}), MAXDP topological descriptor and fragment- based polar surface area (PSA) for the rat data set. Number of data (n), squared correlation coefficient (r^2), F-value (F) and standard error (S.E.) are model statistics.
Reference	Molecular modeling of histamine H3 receptor and QSAR studies on arylbenzofuran derived H3 antagonists. *Journal of Molecular Graphics and Modelling* 26 (2008) 834–844

Target Species	Human
Chemical Type	Clobenpropit analogs
Mode of Action	Dual activity ligand for H3 and H4 receptors

QSAR Model 1	$pK_i\ hH_3R = 5.138\ (\pm 0.758) + 12.506\ (\pm 2.487)\ [GCUT\_SMR\_2] - 0.002\ (\pm 0.009)\ [SlogP\_VSA3]$ $- 0.625\ (\pm 0.573)\ [E\_stb] - 0.073\ (\pm 0.048)\ [dipoleZ]$ $N = 22,\ r = 0.871,\ R^2 = 0.758,\ S = 0.259,\ F_{4,17} = 13.327,\ F_{5\%,4,17} = 2.965.$
Molecular Descriptor	Access the following web-servers to compute molecular descriptors: **MoDel** and **e-dragon** BCUT_PEOE_2: A descriptor calculated from the eigenvalues of a modified distance adjacency matrix. The diagonal of the matrix takes the PEOEa partial charges (Steric, electrostatic); BCUT_SLOGP_0: A descriptor calculated from the eigenvalues of a modified distance adjacency matrix. The diagonal of the matrix takes the value of the atomic contribution to log P (Steric, hydrophobic); dipoleZ: The z component of the dipole moment (Electrostatic); E_sol: The solvation energy descriptor (Hydrophobic) E_stb: The bond stretch-bend cross-term potential energy descriptor calculated from stored 3D conformations (Steric); GCUT_PEOE_1: A descriptor calculated from the eigenvalues of a modified graph distance adjacency matrix. The diagonal of the matrix takes the value of the atomic contribution to molar refractivity (Steric, electrostatic); GCUT_SMR_2: A descriptor calculated from the eigenvalues of a modified graph distance adjacency matrix. The diagonal of the matrix takes the value of the atomic contribution to molar refractivity (Steric); SlogP_VSA3: The subdivided surface area descriptor based on the sum of the approximate accessible van der Waal's surface area, calculated for each atom with contribution to log of partition coefficient (octanol/water) in the range of 0–0.1 (Hydrophobic)
Reference	Clobenpropit analogs as dual activity ligands for the histamine H3 and H4 receptors: Synthesis, pharmacological evaluation, and cross-target QSAR studies. *Bioorganic & Medicinal Chemistry* 17 (2009) 3987–3994

Target Species	Human

Chemical Type	2-aminobenzimidazole derivatives
Mode of Action	Antagonist
QSAR Model 1	$pK_{a,1} = -1.43(\pm 0.11)\sigma_{m-p} + 6.08(\pm 0.04)$ $n = 11;\ r^2 = 0.950;\ s = 0.13;\ F = 158.4;\ q^2 = 0.887;\ SDEP = 0.17$
QSAR Model 2	$pK_{a,1} = -1.46(\pm 0.16)\sigma_{m-p} + 6.51(\pm 0.06)$ $n = 11;\ r^2 = 0.910;\ s = 0.17;\ F = 87.2;\ q^2 = 0.798;\ SDEP = 0.23$
QSAR Model 3	$\log P = 1.04(\pm 0.03)\pi + 0.82(\pm 0.08)\sigma_{m-p} + 1.55(\pm 0.03)$ $n = 11;\ r^2 = 0.995;\ s = 0.08;\ F = 812.4;\ q^2 = 0.990;\ SDEP = 0.10;$ $r(\pi/\sigma_{m-p}) = 0.039$
QSAR model 4	$\log P = 1.06(\pm 0.05)\pi + 0.85(\pm 0.11)\sigma_{m-p} + 1.86(\pm 0.04)$ $n = 10;\ r^2 = 0.989;\ s = 0.11;\ F = 306.2;\ q^2 = 0.981;\ SDEP = 0.10;$ $r(\pi/\sigma_{m-p}) = 0.278$
QSAR model 5	$pK_i = 1.51(\pm 0.37)\log P - 0.31(\pm 0.09)\log P^2 + 6.96(\pm 0.38)$ $n = 11;\ r^2 = 0.682;\ s = 0.38;\ F = 8.6;\ q^2 = 0.478;\ SDEP = 0.41$
QSAR model 6	$pK_i = 1.40\log P - 0.28\log P^2 + 0.14pK_{a,1} + 0.07\sigma_m - 0.03\sigma_p - 0.04MR + 4.48$
Molecular description	Access the following web-servers to compute molecular descriptors: **MoDel** and **e-dragon** Average of σ_m and σ_p (referred to as σ_{m-p} henceforth), accounting for benzimidazole tautomerism, which was then employed as a descriptor of substituent electronic effect. Physico-chemical parameters σ_{m-p}, π and MR. Partition and distribution coefficients (log P and log $D_{7.4}$). Traditional descriptors of substituent electronic (σ_m, σ_p, σ_{m_p}, F,R) and steric (MR, L, B1, B5, Sb) effects were used together with the experimental parameters; the square of the lipophilicity (log P^2).
Reference	Synthesis, biological activity, QSAR and QSPR study of 2-aminobenzimidazole derivatives as potent H3-antagonists. *Bioorganic & Medicinal Chemistry* 12 (2004) 663–674