Target Name	FGFR
Target TTD ID	TTDC00024

Target Species	Human
Chemical Type	Pyrido[2,3-d]pyrimidine derivatives
Mode of Action	Inhibitor
QSAR Model 1	2DA-FGFR-TK: $\log(10^6/IC_{50}) = 36.021 \times MATS6m - 20.634 \times MATS1e - 6.513 \times GATS5v - 26.908$ $N = 18, \quad R^2 = 0.808, \quad S = 0.561, \quad p < 10^{-5} \quad Q^2 = 0.676, \quad S_{CV} = 0.653$
Molecular Descriptor	Access the following web-servers to compute molecular descriptors: **MoDel** and **e-dragon** Three 2D autocorrelation MLR models are reported in this work. In total, nine descriptors from the whole 2D autocorrelation pool were employed. N is the number of compounds included in the training set, R^2 is the square of correlation coefficients, S is the standard deviation of the regression, p is the significance of the variables in the model, and Q^2 and S_{CV} are the correlation coefficients and standard deviations of the leave-one-out (LOO) cross validation. Three spatial autocorrelation vectors were employed for modeling the inhibitory activities: Broto-Moreau's autocorrelation coefficients (ATS), Moran's indices (MATS), and Geary's coefficients (GATS). $$\mathrm{ATS}(p_k, l) = \sum_i \delta_{ij} p_{ki} p_{kj}$$ $$\mathrm{MATS}(p_k, l) = \frac{N}{2L} \frac{\sum_{ij} \delta_{ij}(p_{ki} - \bar{p}_k)(p_{kj} - \bar{p}_k)}{\sum_i (p_{ki} - \bar{p}_k)}$$

	$$\mathrm{GATS}(p_k, l) = \frac{(N-1)}{4L} \frac{\sum_{ij} \delta_{ij} (p_{ki} - \bar{p}_k)(p_{kj} - \bar{p}_k)}{\sum_i (p_{ki} - \bar{p}_k)}$$ where ATS(pk, l), MATS(pk, l), and GATS(pk, l) are Broto-Moreau's autocorrelation coefficient, Moran's index, and Geary's coefficient at spatial lag l, respectively; pki and pkj are the values of property k of atoms, i and j, respectively; _pk is the average value of property k, L is the number of nonzero values in the sum, N is the number of atoms in the molecule, and d (l,dij) is a Dirac-delta function defined as $$\delta(l, d_{ij}) = \left\{ \begin{array}{lll} 1 & \text{if} & d_{ij} = l \\ 0 & \text{if} & d_{ij} \neq l \end{array} \right\}$$ where dij is the topological distance or spatial lag between atoms i and j. Spatial autocorrelation measures the level of interdependence between properties, and the nature and strength of that interdependence. In a molecule, Moran's and Geary's spatial autocorrelation analysis tests whether the value of an atomic property at one atom in the molecular structure is independent of the values of the property at neighboring atoms. If dependence exists, the property is said to exhibit spatial autocorrelation. The autocorrelation vectors represent the degree of similarity between molecules.
Reference	2D Autocorrelation, CoMFA, and CoMSIA modeling of protein tyrosine kinases' inhibition by substituted pyrido[2,3-d]pyrimidine derivatives. *Bioorganic & Medicinal Chemistry* 16 (2008) 810–821