

The influence of lead discovery strategies on the properties of drug candidates

Supporting Information

Data analysis

The physicochemical properties were calculated by the QuikProp tool as available in the Schrödinger software suite. Evaluated properties include the molecular weight (MW), the hydrogen-bond donor and acceptor counts (donorHB and accptHB, respectively), logP, the conformation independent solubility metric (CIQPlogS), polar surface area (PSA), the numbers of ring atoms (#ringatoms), non-hydrogen atoms (Nheavy) and the number of rotatable bonds (#rotor), the Lipinski score (a value of 1 for each violation of the rule of 5 with a maximum value of 4), and the lead-like score (a value of 1 for each violation of the rule of 3 with a maximum value of 3). The constitutional descriptors and Andrews binding energy (ABE) were calculated by the JChem software available from ChemAxon. Charge states (acid, base, quaternary base, neutral or zwitterion) were estimated based on calculated pKa values at pH 7.4 by the Epik software. Ligand efficiency (LE) and lipophilic ligand efficiency (LLE) were calculated using formulas as published.^{13,26} The IC₅₀ and K_i values were treated similarly despite the fundamental difference between these measurements. In most cases activity for both the hit and the lead was reported using the same activity type therefore the difference in potency and LE is likely to be meaningful. Statistical analyses were performed with the Statistica package. There were 26 cases in the HTS database where different leads were developed from the same hit, 1 case in the same database where the same lead was developed from different hits and there were 7 cases in the non-HTS database where the same lead was developed starting from different hits. All property values and statistical analyses were performed with either all duplicates included or without duplicates and the results were very similar. Thus, both in the main article as well as in the supporting information we only tabulated the results obtained with duplicates.

Statistical summary of properties of HTS hits

Hit	Valid N	Mean	Median	Minimum	Maximum	Range	Std.Dev.	Standard Error
pPotency	335	6.1777	6.1427	2.8239	9.2000	6.3761	1.0199	0.0570
MW	335	364.5062	358.9205	96.1320	826.0000	729.8680	97.8768	5.3556
donorHB	335	1.5540	1.0000	0.0000	7.0000	7.0000	1.1933	0.0653
accptHB	335	5.1555	4.7500	0.0000	12.9500	12.9500	2.3009	0.1259
QPlogP	335	3.7167	3.8140	-2.7380	9.2800	12.0180	1.6086	0.0880
CIQPlogS	335	-5.0217	-5.0000	-9.6260	-0.2270	9.3990	1.6304	0.0892
PSA	335	74.2380	67.0225	10.8600	186.3580	175.4980	35.2810	1.9305
Rule of 5	335	0.3293	0.0000	0.0000	4.0000	4.0000	0.6194	0.0339
Rule of 3	335	2.3174	3.0000	0.0000	4.0000	4.0000	0.9592	0.0525
number_of_rings	335	3.2806	3.0000	0.0000	8.0000	8.0000	1.0491	0.0573
#ringatoms	335	17.4192	17.0000	0.0000	33.0000	33.0000	5.1229	0.2803
Nheavy	335	25.7096	25.0000	7.0000	60.0000	53.0000	6.8652	0.3756
#rotor	335	5.0180	4.0000	0.0000	23.0000	23.0000	3.4475	0.1886
ABE	335	10.8222	9.6500	-5.0000	41.0000	46.0000	8.6687	0.4743
LE	335	0.3532	0.3398	0.1249	1.1126	0.9876	0.1156	0.0065
LLE	335	2.1955	2.2399	-5.2480	8.7219	13.9699	2.1889	0.1196

Statistical summary of properties of HTS leads

Lead	Valid N	Mean	Median	Minimum	Maximum	Range	Std.Dev.	Standard Error
pPotency	335	7.5741	7.5229	4.6990	10.6990	6.0000	0.9784	0.0544
MW	335	416.0115	405.9245	186.2560	920.1130	733.8570	102.1554	5.5897
donorHB	335	1.7127	2.0000	0.0000	6.0000	6.0000	1.1986	0.0656
accptHB	335	5.9647	5.5000	1.0000	14.5000	13.5000	2.3380	0.1279
QPlogP	335	4.0278	4.0945	-0.6660	10.4050	11.0710	1.6253	0.0889
CIQPlogS	335	-5.7086	-5.5620	-12.4980	-0.4500	12.0480	1.7608	0.0963
PSA	335	83.3232	78.1985	10.8440	261.6400	250.7960	36.5318	1.9989
Rule of 5	335	0.4611	0.0000	0.0000	3.0000	3.0000	0.7166	0.0392
Rule of 3	335	2.6407	3.0000	0.0000	4.0000	4.0000	0.7411	0.0406
number_of_rings	335	3.6537	4.0000	1.0000	8.0000	7.0000	1.0380	0.0567
#ringatoms	335	19.3982	19.0000	6.0000	40.0000	34.0000	5.2875	0.2893
Nheavy	335	29.0449	28.5000	14.0000	67.0000	53.0000	7.1866	0.3932
#rotor	335	5.7216	5.0000	0.0000	25.0000	25.0000	3.3581	0.1837
ABE	335	14.5494	13.6500	-4.1000	56.0000	60.1000	9.1543	0.5009
LE	335	0.3787	0.3653	0.1573	0.8150	0.6577	0.1060	0.0059
LLE	335	3.3096	3.4268	-5.1930	8.8539	14.0469	2.1927	0.1198

Analysis of HTS hit - lead pairs

Lead - Hit	MW*	donorHB	accptHB*	logP [#]	logS*	PSA*	RO5 [#]
MEAN	51.51	0.16	0.81	0.31	-0.69	9.09	0.13
MEDIAN	47.00	1.00	0.75	0.28	-0.56	11.18	0.00
DELTA	RO3*	#rings*	Nheavy*	#rotor*	ABE*	LE*	LLE*
MEAN	0.32	0.37	3.34	0.70	3.73	0.03	1.11
MEDIAN	0.00	1.00	3.50	1.00	4.00	0.03	1.19

*statistically significant difference at level $p < 0.01$ [#]statistically significant difference at level $p < 0.015$

Statistical summary of properties of historic leads

Historic Leads	Valid N	Mean	Median	Minimum	Maximum	Range	Std.Dev.	Standard Error
#acid	385	0.2401	0.0000	0.0000	4.0000	4.0000	0.5546	0.0295
#rotor	385	4.8757	4.0000	0.0000	24.0000	24.0000	3.5579	0.1891
MW	385	302.5543	287.4205	59.0710	929.1580	870.0870	118.9105	6.3200
donorHB	385	1.7599	1.0000	0.0000	15.0000	15.0000	1.8661	0.0992
accptHB	385	5.3292	4.5000	0.0000	22.7000	22.7000	3.3258	0.1768
QPlogP	385	2.1700	2.2410	-7.1780	12.1720	19.3500	2.3012	0.1223
CIQPlogS	385	-3.1556	-3.0635	-15.5670	3.9550	19.5220	2.1468	0.1141
PSA	385	76.9787	63.8660	0.0000	323.5720	323.5720	55.9386	2.9731
Rule of 5	385	0.2627	0.0000	0.0000	3.0000	3.0000	0.6310	0.0335
#ringatoms	385	12.7740	12.0000	0.0000	38.0000	38.0000	6.5645	0.3489
Nheavy	385	21.3729	21.0000	4.0000	67.0000	63.0000	8.4924	0.4514
Rule of 3	385	1.7232	2.0000	0.0000	4.0000	4.0000	0.9652	0.0513
number of rings	385	2.5820	3.0000	0.0000	9.0000	9.0000	1.5103	0.0777
ABE	385	11.1713	9.0000	-8.9000	61.3000	70.2000	11.0294	0.5854

Statistical summary of properties of historic drugs

Historic Drugs	Valid N	Mean	Median	Minimum	Maximum	Range	Std.Dev.	Standard Error
#acid	541	0.1992	0.0000	0.0000	4.0000	4.0000	0.5125	0.0228
#rotor	541	5.6706	5.0000	0.0000	28.0000	28.0000	4.0476	0.1798
MW	541	347.3833	329.4840	27.0260	1029.2750	1002.2490	122.4016	5.4360
donorHB	541	1.6460	1.0000	0.0000	17.0000	17.0000	1.7220	0.0765
accptHB	541	5.8593	5.2500	0.0000	26.9000	26.9000	3.5181	0.1562
QPlogP	541	2.6923	2.6620	-8.5810	13.1910	21.7720	2.1470	0.0954
CIQPlogS	541	-3.7807	-3.6830	-16.9970	5.6420	22.6390	2.0708	0.0920
PSA	541	80.8916	72.8440	0.0000	321.5150	321.5150	53.0748	2.3571
Rule of 5	541	0.3097	0.0000	0.0000	3.0000	3.0000	0.6659	0.0296
#ringatoms	541	14.5444	15.0000	0.0000	39.0000	39.0000	6.2856	0.2792
Nheavy	541	24.3846	23.0000	2.0000	74.0000	72.0000	8.6062	0.3822
Rule of 3	541	2.0178	2.0000	0.0000	4.0000	4.0000	0.9439	0.0419
number of rings	541	2.9039	3.0000	0.0000	9.0000	9.0000	1.4318	0.0616
ABE	541	13.4016	11.7000	-12.1000	63.1000	75.2000	10.7195	0.4761

Comparison of HTS hits to historic leads

HTS Hits –						
Historic Leads	MW*	donorHB	accptHB	logP*	logs*	PSA
MEAN	61.95	-0.21	-0.17	1.55	-1.87	-2.74
MEDIAN	71.50	0.00	0.25	1.57	-1.94	3.16
DELTA	RO5	RO3*	#rings*	Nheavy*	#rotor	ABE*
MEAN	0.07	0.59	0.70	4.65	4.34	0.14
MEDIAN	0.00	1.00	0.00	5.00	4.00	0.00

*statistically significant difference at level $p < 0.01$

Comparison of HTS leads to historic leads

HTS Leads –						
Historic Leads	MW*	donorHB	accptHB*	logP*	logs*	PSA
MEAN	113.46	-0.05	0.64	1.86	-2.55	6.34
MEDIAN	118.50	1.00	1.00	1.85	-2.50	14.33
DELTA	RO5*	RO3*	#rings*	Nheavy*	#rotor*	ABE*
MEAN	0.20	0.92	1.07	7.67	0.85	3.38
MEDIAN	0.00	1.00	1.00	7.50	1.00	4.65

*statistically significant difference at level $p < 0.01$

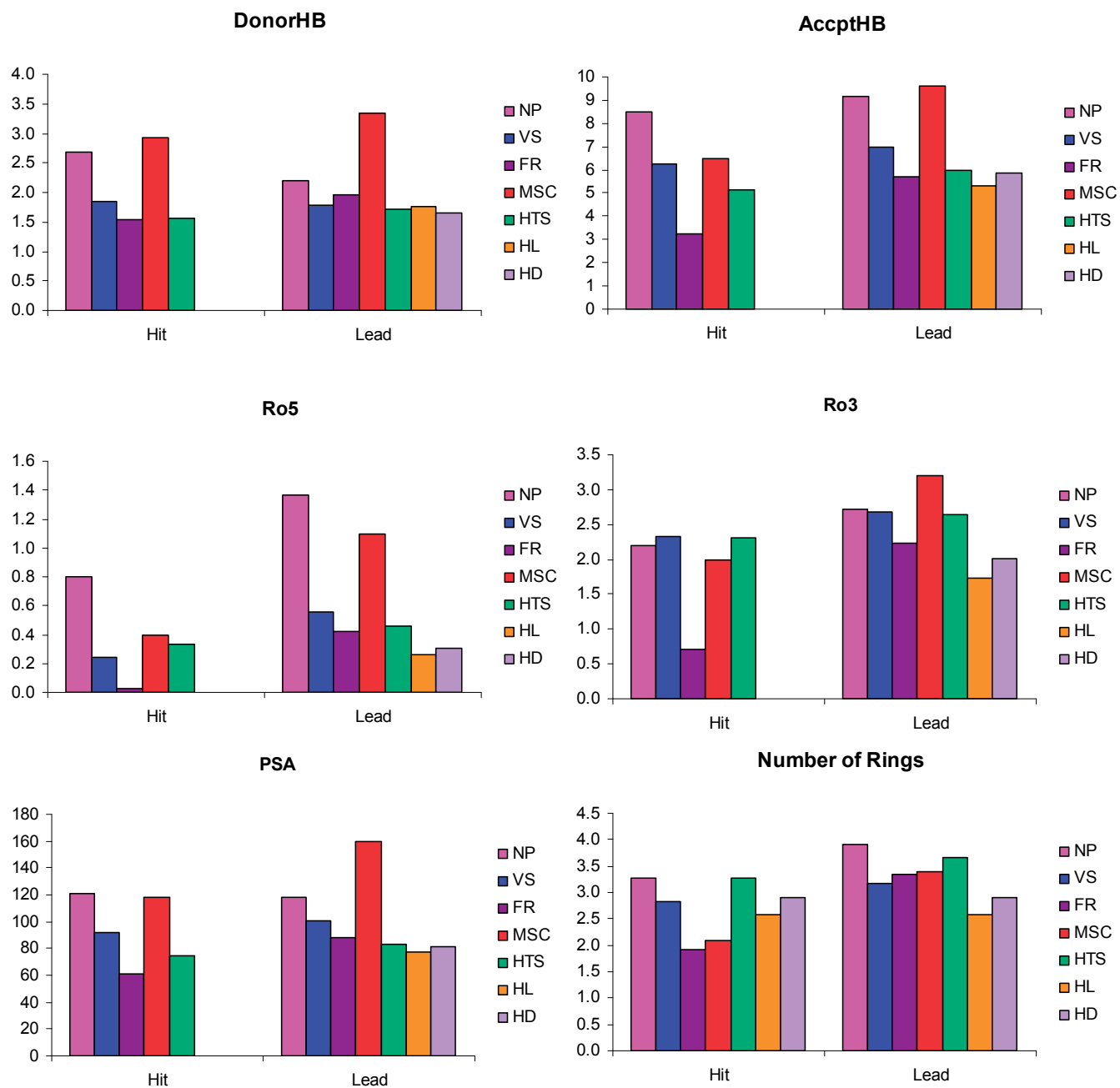
Statistical summary of properties of non-HTS hits

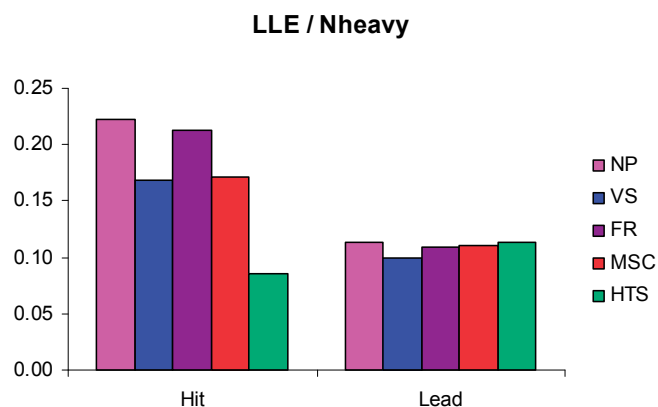
	Valid N	Mean	Median	Minimum	Maximum	Range	Std.Dev.	Standard Error
pAct	84	6.3186	5.8374	2.7433	12.3448	9.6015	2.3209	0.2532
pKi_pIC50	84	4.6066	4.2557	2.0000	9.0000	7.0000	1.6921	0.1846
LE	84	0.3239	0.3020	0.1438	0.7231	0.5793	0.1131	0.0124
LLE	84	4.0237	3.4715	-1.3277	12.2181	13.5458	2.4763	0.2718
#acid	84	0.2651	0.0000	0.0000	2.0000	2.0000	0.5429	0.0596
#rotor	84	5.0361	4.0000	0.0000	24.0000	24.0000	4.3095	0.4730
MW	84	303.6843	268.0660	118.1380	609.7640	491.6260	131.0403	14.3835
donorHB	84	1.9337	2.0000	0.0000	8.0000	8.0000	1.5754	0.1729
accptHB	84	5.1681	4.0000	0.7500	14.0000	13.2500	3.1687	0.3478
QPlogP	84	2.2554	2.1210	-3.2710	6.8640	10.1350	1.5923	0.1748
CIQlogS	84	-3.5637	-3.1560	-8.7900	-0.3210	8.4690	1.8408	0.2021
PSA	84	84.1638	73.0510	22.4400	241.9430	219.5030	47.4877	5.2125
Rule of 5	84	0.2289	0.0000	0.0000	2.0000	2.0000	0.5256	0.0577
#ringatoms	84	12.7108	12.0000	5.0000	27.0000	22.0000	4.9817	0.5468
Nheavy	84	20.8916	18.0000	9.0000	44.0000	35.0000	8.7861	0.9644
Rule of 3	84	1.5301	1.0000	0.0000	4.0000	4.0000	1.2527	0.1375
number_of_rings	84	2.3929	2.0000	1.0000	6.0000	5.0000	1.0181	0.1111
ABE	84	7.6805	5.5500	-6.7000	42.5000	49.2000	10.1070	1.1161

Statistical summary of properties of non-HTS leads

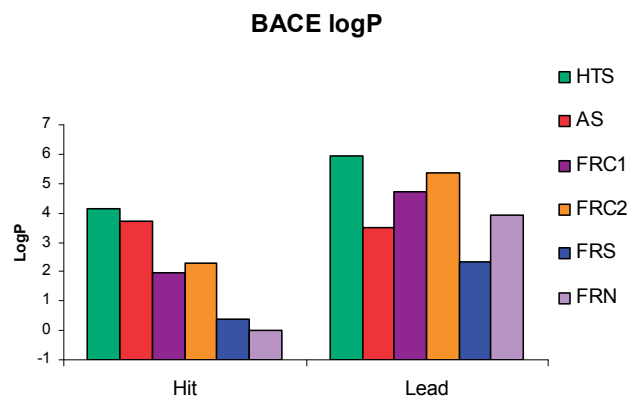
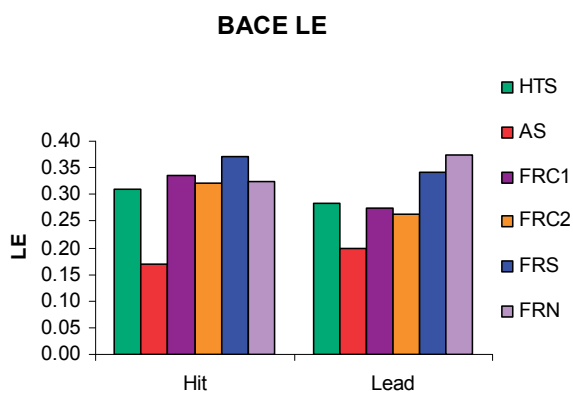
	Valid N	Mean	Median	Minimum	Maximum	Range	Std.Dev.	Standard Error
pAct	84	9.2576	8.9393	5.7909	14.8522	9.0613	1.7715	0.1933
pKi_pIC50	84	6.7492	6.5172	4.2218	10.8280	6.6062	1.2915	0.1409
LE	84	0.3369	0.3246	0.1341	0.6600	0.5260	0.1085	0.0118
LLE	84	3.1800	3.1593	-1.9341	11.3930	13.3270	2.3729	0.2589
#acid	84	0.3095	0.0000	0.0000	3.0000	3.0000	0.7441	0.0812
#rotor	84	7.2976	6.5000	0.0000	18.0000	18.0000	4.2192	0.4604
MW	84	429.0343	418.9865	208.2570	759.2890	551.0320	128.8246	14.0559
donorHB	84	2.1012	2.0000	0.0000	7.0000	7.0000	1.4014	0.1529
accptHB	84	7.0119	6.5000	1.5000	16.9000	15.4000	3.3981	0.3708
QPlogP	84	3.5692	3.5905	-2.4900	7.2610	9.7510	1.9518	0.2130
CIQlogS	84	-5.5780	-5.5150	-11.8550	-0.6390	11.2160	2.1800	0.2379
PSA	84	104.0086	89.4710	26.8090	251.5630	224.7540	52.2360	5.6994
Rule of 5	84	0.6667	0.0000	0.0000	3.0000	3.0000	0.8263	0.0902
#ringatoms	84	18.3810	18.0000	6.0000	31.0000	25.0000	5.2271	0.5703
Nheavy	84	29.5952	29.5000	15.0000	52.0000	37.0000	8.4940	0.9268
Rule of 3	84	2.5476	3.0000	0.0000	4.0000	4.0000	1.0227	0.1116
number_of_rings	84	3.3690	3.0000	1.0000	6.0000	5.0000	1.0271	0.1121
ABE	84	14.3049	12.6000	-0.9000	37.2000	38.1000	9.7035	1.0716

Figures that were not included in the main text for HTS and Non-HTS hits and leads





Figures that were not included in the main text for BACE-1



Qualitative Analysis of the Student t-tests

(significant changes are identified at $p < 0.05$)

HTS hits and HTS leads are significantly different, HTS leads are more complex, more lipophylic, less soluble, more flexible, more potent than corresponding hits

Significant changes:

pAct, mol MW, hb accptHB, QPlogPo/w, CIQPlogS, PSA, RuleOfFive, RuleOfThree, number_of_rings, #ringatoms, #nonHatm, #rotor, ABE, LE, LLE

Non-significant changes:

donorHB

HTS hits and historical leads are somewhat different, HTS hits are more complex, more lipophylic, less soluble

Significant changes:

mol MW, QPlogPo/w, CIQPlogS, RuleOfThree, number_of_rings, #ringatoms, #nonHatm, ABE

Non-significant changes:

donorHB, hb accptHB, PSA, RuleOfFive, #rotor

HTS hits and historical drugs are significantly different, HTS hits are more complex, more lipophylic, less soluble

Significant changes:

mol MW, hb accptHB, QPlogPo/w, CIQPlogS, PSA, RuleOfFive, RuleOfThree, number_of_rings, #ringatoms, #nonHatm, #rotor, ABE

Non-significant changes:

donorHB

HTS hits and fragment hits are significantly different, HTS hits are more complex, more lipophylic, less soluble, more flexible, more potent than corresponding fragment hits

Significant changes:

pAct, mol MW, hb accptHB, QPlogPo/w, CIQPlogS, PSA, RuleOfFive, RuleOfThree, number_of_rings, #ringatoms, #nonHatm, #rotor, ABE, LLE

Non-significant changes:

donorHB, LE

HTS hits and fragment leads are somewhat similar, however, fragment leads are naturally more active

Significant changes:

pAct, PSA, LLE

Non-significant changes:

mol MW, hb accptHB, QPlogPo/w, CIQPlogS, RuleOfFive, RuleOfThree, number_of_rings, #ringatoms, #nonHatm, #rotor, ABE, donorHB, LE

HTS leads and historical leads are significantly different, HTS leads are more complex, more lypophylic, less soluble, more flexible than historical leads

Significant changes:

mol MW, hb accptHB, QPlogPo/w, CIQPlogS, RuleOfFive, RuleOfThree, number_of_rings, #ringatoms, #nonHatm, #rotor, ABE

Non-significant changes:

donorHB, PSA

HTS leads and historical drugs are somewhat different, HTS leads are more complex, more lypophylic, less soluble than historical drugs

Significant changes:

mol MW, QPlogPo/w, CIQPlogS, RuleOfFive, RuleOfThree, #ringatoms, #nonHatm, ABE

Non-significant changes:

donorHB, hb accptHB, PSA, number_of_rings, #rotor

HTS leads and fragment hits are significantly different, HTS leads are more complex, more lypophylic, less soluble, more flexible, and naturally more potent than fragment hits

Significant changes:

pAct, mol MW, hb accptHB, QPlogPo/w, CIQPlogS, PSA, RuleOfFive, RuleOfThree, #ringatoms, #nonHatm, #rotor, ABE

Non-significant:

donorHB, LE, LLE

HTS leads and fragment leads are similar, fragment leads are somewhat more active, but the physchem profile looks similar to HTS leads

Significant changes:

pAct, RuleOfThree, ABE

Non-significant changes:

pAct, mol MW, donorHB, hb accptHB, QPlogPo/w, CIQPlogS, PSA, RuleOfFive, RuleOfThree, #ringatoms, #nonHatm, #rotor, LE, LLE

Historical leads and drugs are different, historical drugs are more complex, more lypophylic, less soluble, more flexible, more potent than corresponding leads

Significant changes:

mol MW, hb accptHB, QPlogPo/w, CIQPlogS, PSA, RuleOfFive, RuleOfThree, number_of_rings, #ringatoms, #nonHatm, #rotor, ABE

Non-significant changes:

donorHB

Historical leads and fragment hits are somewhat different, HTS leads are more complex, more flexible than fragment hits

Significant changes:

mol MW, RuleOfFive, RuleOfThree, number_of_rings, #ringatoms, #nonHatm, #rotor, ABE

Non-significant changes:

donorHB, hb accptHB, QPlogPo/w, CIQPlogS, PSA,

Historical leads and fragment leads are different, fragment leads are more complex, more lypophylic, less soluble than corresponding leads

Significant changes:

mol MW, QPlogPo/w, CIQPlogS, RuleOfThree, number_of_rings, #ringatoms, #nonHatm, ABE

Non-significant changes:

donorHB, hb accptHB, PSA, RuleOfFive, #rotor

Historical drugs and fragment hits are different, historical drugs are more complex, more lypophylic, less soluble, more flexible, more potent than corresponding leads

Significant changes:

mol MW, hb accptHB, QPlogPo/w, CIQPlogS, PSA, RuleOfFive, RuleOfThree, number_of_rings, #ringatoms, #nonHatm, #rotor, ABE

Non-significant changes:

donorHB

Historical drugs and fragment leads are somewhat different, fragment leads are more complex, more lypophylic, less soluble than historical drugs

Significant changes:

mol MW, QPlogPo/w, CIQPlogS, number_of_rings, #ringatoms, ABE

Non-significant changes:

donorHB, hb accptHB, RuleOfFive, RuleOfThree, PSA, #nonHatm, #rotor

Fragment hits and fragment leads are significantly different, fragment leads are more complex, more lypophylic, less soluble, more flexible, more potent than corresponding hits

Significant changes:

pAct, mol MW, hb accptHB, QPlogPo/w, CIQPlogS, PSA, RuleOfFive, RuleOfThree, number_of_rings, #ringatoms, #nonHatm, #rotor, ABE

Non-significant changes:

donorHB, LE, LLE

Fragment leads and nonfragment alternative leads are somewhat different, non fragment alternative leads are more complex, more flexible than fragment leads, however they are not significantly more active

Significant changes:

mol MW, hb accptHB, PSA, RuleOfFive, RuleOfThree, #nonHatm, #rotor, ABE

Non-significant changes:

pAct, donorHB, QPlogPo/w, CIQPlogS, number_of_rings, #ringatoms, LE, LLE

HTS leads and nonfragment alternative leads are somewhat different, non fragment alternative leads are more complex, more flexible and more potent than HTS leads

Significant changes:

pAct, mol MW, hb accptHB, donorHB, PSA, RuleOfFive, #nonHatm, #rotor, LE

Non-significant changes:

QPlogPo/w, CIQPlogS, RuleOfThree, number_of_rings, #ringatoms, ABE, LLE

Historical leads and nonfragment alternative leads are significantly different, non fragment alternative leads leads are more complex, more lypophylic, less soluble, more flexible than historical leads

Significant changes:

mol MW, hb accptHB, QPlogPo/w, CIQPlogS, PSA, RuleOfFive, RuleOfThree,
number_of_rings, #ringatoms, #nonHatm, #rotor, ABE

Non-significant changes:

donorHB

Results of Student's t-tests (significant differences with $p < 0.05$ are indicated red)**HTS hits versus HTS leads**

	Mean	Mean	t-value	df	p	Valid N	Valid N	Std.Dev.	Std.Dev.	F-ratio	p
	hts hit	hts lead				hts hit	hts lead	hts hit	hts lead	Variances	Variances
pAct	6.1777	7.5741	-17.7305	668	0.000000	335	335	1.01991	0.9784	1.086578	0.457224
mol MW	364.5062	416.0115	-6.6534	668	0.000000	335	335	97.87679	102.1554	1.089340	0.435354
donorHB	1.5540	1.7127	-1.7146	668	0.086886	335	335	1.19333	1.1986	1.008934	0.935371
hb accptHB	5.1555	5.9647	-4.5079	668	0.000008	335	335	2.30088	2.3380	1.032557	0.770212
QPlogPo/w	3.7167	4.0278	-2.4862	668	0.013156	335	335	1.60858	1.6253	1.020860	0.850699
CIQlogS	-5.0217	-5.7086	5.2310	668	0.000000	335	335	1.63040	1.7608	1.166302	0.160945
PSA	74.2380	83.3232	-3.2693	668	0.001134	335	335	35.28096	36.5318	1.072162	0.525298
RuleOfFive	0.3293	0.4611	-2.5418	668	0.011255	335	335	0.61944	0.7166	1.338270	0.008004
RuleOfThree	2.3174	2.6407	-4.8754	668	0.000001	335	335	0.95917	0.7411	1.675136	0.000003
number_of_rings	3.2806	3.6537	-4.6276	668	0.000004	335	335	1.04913	1.0380	1.021652	0.844930
#ringatoms	17.4192	19.3982	-4.9127	668	0.000001	335	335	5.12291	5.2875	1.065305	0.564127
#nonHatm	25.7096	29.0449	-6.1331	668	0.000000	335	335	6.86525	7.1866	1.095796	0.404331
#rotor	5.0180	5.7216	-2.6718	668	0.007729	335	335	3.44754	3.3581	1.054003	0.631583
ABE	10.8222	14.5494	-5.4030	668	0.000000	335	335	8.66865	9.1543	1.115181	0.320374
LE	0.3532	0.3787	-2.9233	668	0.003586	335	335	0.11558	0.1060	1.188637	0.122601
LLE	2.1955	3.3096	-6.5817	668	0.000000	335	335	2.18892	2.1927	1.003429	0.975067

HTS hits versus historical leads

	Mean	Mean	t-value	df	p	Valid N	Valid N	Std.Dev.	Std.Dev.	F-ratio	p
	hts hit	Leads				hts hit	Leads	hts hit	Leads	Variances	Variances
pAct	6.1777	NA	NA	333	NA	335	0	1.01991	NA	0.000000	1.000000
mol MW	364.5062	302.5543	7.4368	718	0.000000	335	385	97.87679	118.9105	1.475983	0.000341
donorHB	1.5540	1.7599	-1.7125	718	0.087262	335	385	1.19333	1.8661	2.445311	0.000000
hb accptHB	5.1555	5.3292	-0.7922	718	0.428503	335	385	2.30088	3.3258	2.089254	0.000000
QPlogPo/w	3.7167	2.1700	10.1625	718	0.000000	335	385	1.60858	2.3012	2.046575	0.000000
CIQlogS	-5.0217	-3.1556	-12.7840	718	0.000000	335	385	1.63040	2.1468	1.733735	0.000000
PSA	74.2380	76.9787	-0.7635	718	0.445422	335	385	35.28096	55.9386	2.513872	0.000000
RuleOfFive	0.3293	0.2627	1.3966	718	0.162991	335	385	0.61944	0.6310	1.037811	0.732234
RuleOfThree	2.3174	1.7232	8.0949	718	0.000000	335	385	0.95917	0.9652	1.012658	0.908217
number_of_rings	3.2806	2.5809	7.0876	718	0.000000	335	385	1.04913	1.5122	2.077512	0.000000
#ringatoms	17.4192	12.7740	10.3057	718	0.000000	335	385	5.12291	6.5645	1.642011	0.000005
#nonHatm	25.7096	21.3729	7.3400	718	0.000000	335	385	6.86525	8.4924	1.530208	0.000092
#rotor	5.0180	4.8757	0.5321	718	0.594826	335	385	3.44754	3.5579	1.065051	0.560805
ABE	10.8222	-3.2350	24.7307	718	0.000000	335	385	8.66865	6.4298	1.817624	0.000000
LE	0.3532	NA	NA	333	NA	335	0	0.11558	NA	0.000000	1.000000
LLE	2.1955	NA	NA	333	NA	335	0	2.18892	NA	0.000000	1.000000

HTS hits versus historical drugs

	Mean	Mean	t-value	df	p	Valid N	Valid N	Std.Dev.	Std.Dev.	F-ratio	p
	hts hit	Drugs				hts hit	Drugs	hts hit	Drugs	Variances	Variances
pAct	6.1777	NA	NA	333	NA	335	0	1.01991	NA	0.000000	1.000000
mol MW	364.5062	347.3833	2.14441	874	0.032287	335	541	97.87679	122.4016	1.563920	0.000011
donorHB	1.5540	1.6460	-0.85016	874	0.395480	335	541	1.19333	1.7220	2.082340	0.000000
hb accptHB	5.1555	5.8593	-3.22870	874	0.001292	335	541	2.30088	3.5181	2.337884	0.000000
QPlogPo/w	3.7167	2.6923	7.44982	874	0.000000	335	541	1.60858	2.1470	1.781519	0.000000
CIQlogS	-5.0217	-3.7807	-9.22848	874	0.000000	335	541	1.63040	2.0708	1.613259	0.000003
PSA	74.2380	80.8916	-2.01617	874	0.044101	335	541	35.28096	53.0748	2.263058	0.000000
RuleOfFive	0.3293	0.3097	0.43097	874	0.666603	335	541	0.61944	0.6659	1.155702	0.151407
RuleOfThree	2.3174	2.0178	4.47525	874	0.000009	335	541	0.95917	0.9439	1.032558	0.742854
number_of_rings	3.2806	2.9057	4.15222	874	0.000036	335	541	1.04913	1.4313	1.861142	0.000000
#ringatoms	17.4192	14.5444	6.97091	874	0.000000	335	541	5.12291	6.2856	1.505452	0.000058
#nonHatm	25.7096	24.3846	2.36167	874	0.018420	335	541	6.86525	8.6062	1.571497	0.000009
#rotor	5.0180	5.6706	-2.42386	874	0.015567	335	541	3.44754	4.0476	1.378427	0.001546
ABE	10.8222	-2.2880	26.10696	874	0.000000	335	541	8.66865	6.1522	1.985359	0.000000
LE	0.3532	NA	NA	333	NA	335	0	0.11558	NA	0.000000	1.000000
LLE	2.1955	NA	NA	333	NA	335	0	2.18892	NA	0.000000	1.000000

HTS hits versus fragment hits

	Mean	Mean	t-value	df	p	Valid N	Valid N	Std.Dev.	Std.Dev.	F-ratio	p
	hts hit	frg hit				hts hit	frg hit	hts hit	frg hit	Variances	Variances
pAct	6.1777	5.1166	5.61974	371	0.000000	335	38	1.01991	1.63853	2.58098	0.000010
mol MW	364.5062	217.6229	8.94925	371	0.000000	335	38	97.87679	75.43460	1.68352	0.055608
donorHB	1.5540	1.5395	0.07210	371	0.942562	335	38	1.19333	1.05511	1.27915	0.365742
hb accptHB	5.1555	3.2224	4.98556	371	0.000001	335	38	2.30088	1.91084	1.44991	0.169382
QIPlogPo/w	3.7167	1.9055	6.78548	371	0.000000	335	38	1.60858	1.01051	2.53396	0.001009
CIQlogS	-5.0217	-2.7124	-8.42909	371	0.000000	335	38	1.63040	1.29832	1.57697	0.092872
PSA	74.2380	60.5769	2.31753	371	0.021020	335	38	35.28096	25.54358	1.90773	0.018781
RuleOfFive	0.3293	0.0263	3.00059	371	0.002877	335	38	0.61944	0.16222	14.58064	0.000000
RuleOfThree	2.3174	0.7105	9.90566	371	0.000000	335	38	0.95917	0.83530	1.31857	0.307868
number_of_rings	3.2806	1.9211	7.84381	371	0.000000	335	38	1.04913	0.58732	3.19081	0.000063
#ringatoms	17.4192	10.3421	8.36863	371	0.000000	335	38	5.12291	2.79262	3.36519	0.000032
#nonHatm	25.7096	15.1053	9.32406	371	0.000000	335	38	6.86525	4.13809	2.75241	0.000387
#rotor	5.0180	3.0263	3.51327	371	0.000497	335	38	3.44754	1.63553	4.44326	0.000001
ABE	10.8222	2.2528	5.76360	371	0.000000	335	38	8.66865	6.35414	1.86118	0.027621
LE	0.3532	0.3497	0.17360	371	0.862278	335	38	0.11558	0.11133	1.07786	0.813006
LLE	2.1955	3.2111	-2.76023	371	0.006063	335	38	2.18892	1.75270	1.55971	0.100825

HTS hits versus fragment leads

	Mean	Mean	t-value	df	p	Valid N	Valid N	Std.Dev.	Std.Dev.	F-ratio	p
	hts hit	frg lead				hts hit	frg lead	hts hit	frg lead	Variances	Variances
pAct	6.1777	8.9670	-14.7578	371	0.000000	335	38	1.01991	1.6449	2.601098	0.000008
mol MW	364.5062	381.6451	-1.0096	371	0.313325	335	38	97.87679	109.9758	1.262511	0.296342
donorHB	1.5540	1.9539	-1.9551	371	0.051329	335	38	1.19333	1.2079	1.024536	0.869374
hb accptHB	5.1555	5.7237	-1.3625	371	0.173854	335	38	2.30088	3.4167	2.205065	0.000273
QIPlogPo/w	3.7167	3.5960	0.4417	371	0.658961	335	38	1.60858	1.4845	1.174105	0.565899
CIQlogS	-5.0217	-5.3465	1.1504	371	0.250702	335	38	1.63040	1.8061	1.227158	0.356637
PSA	74.2380	87.5834	-2.1323	371	0.033642	335	38	35.28096	46.4996	1.737070	0.012962
RuleOfFive	0.3293	0.4211	-0.8616	371	0.389477	335	38	0.61944	0.6423	1.075102	0.716531
RuleOfThree	2.3174	2.2368	0.4760	371	0.634341	335	38	0.95917	1.2178	1.611885	0.032640
number_of_rings	3.2806	3.3421	-0.3426	371	0.732112	335	38	1.04913	1.0469	1.004246	1.000000
#ringatoms	17.4192	18.2895	-0.9860	371	0.324775	335	38	5.12291	5.4421	1.128503	0.571689
#nonHatm	25.7096	26.8947	-0.9944	371	0.320690	335	38	6.86525	7.7766	1.283111	0.265048
#rotor	5.0180	6.0263	-1.7012	371	0.089738	335	38	3.44754	3.5904	1.084608	0.689397
ABE	10.8222	11.1861	-0.2398	371	0.810650	335	38	8.66865	8.5086	1.037978	0.936821
LE	0.3532	0.3584	-0.2657	371	0.790615	335	38	0.11558	0.1181	1.043572	0.811029
LLE	2.1955	2.9414	-2.0164	371	0.044473	335	38	2.18892	1.8894	1.342185	0.277136

HTS leads versus historical leads

	Mean	Mean	t-value	df	p	Valid N	Valid N	Std.Dev.	Std.Dev.	F-ratio	p
	hts lead	Leads				hts lead	Leads	hts lead	Leads	Variances	Variances
pAct	7.5741	NA	NA	333	NA	335	0	0.9784	NA	0.000000	1.000000
mol MW	416.0115	302.5543	13.3883	718	0.000000	335	385	102.1554	118.9105	1.354933	0.005126
donorHB	1.7127	1.7599	-0.3919	718	0.695278	335	385	1.1986	1.8661	2.423659	0.000000
hb accptHB	5.9647	5.3292	2.8836	718	0.004055	335	385	2.3380	3.3258	2.023378	0.000000
QIPlogPo/w	4.0278	2.1700	12.1664	718	0.000000	335	385	1.6253	2.3012	2.004756	0.000000
CIQlogS	-5.7086	-3.1556	-16.9983	718	0.000000	335	385	1.7608	2.1468	1.486523	0.000265
PSA	83.3232	76.9787	1.7503	718	0.080513	335	385	36.5318	55.9386	2.344676	0.000000
RuleOfFive	0.4611	0.2627	3.8587	718	0.000125	335	385	0.7166	0.6310	1.289512	0.018643
RuleOfThree	2.6407	1.7232	13.9265	718	0.000000	335	385	0.7411	0.9652	1.696340	0.000001
number_of_rings	3.6537	2.5809	10.9019	718	0.000000	335	385	1.0380	1.5122	2.122494	0.000000
#ringatoms	19.3982	12.7740	14.5244	718	0.000000	335	385	5.2875	6.5645	1.541353	0.000070
#nonHatm	29.0449	21.3729	12.7543	718	0.000000	335	385	7.1866	8.4924	1.396436	0.002102
#rotor	5.7216	4.8757	3.2026	718	0.001425	335	385	3.3581	3.5579	1.122567	0.285766
ABE	14.5494	-3.2350	30.2325	718	0.000000	335	385	9.1543	6.4298	2.026980	0.000000
LE	0.3787	NA	NA	333	NA	335	0	0.1060	NA	0.000000	1.000000
LLE	3.3096	NA	NA	333	NA	335	0	2.1927	NA	0.000000	1.000000

HTS leads versus historical drugs

	Mean	Mean	t-value	df	p	Valid N	Valid N	Std.Dev.	Std.Dev.	F-ratio	p
	hts lead	Drugs				hts lead	Drugs	hts lead	Drugs	Variances	Variances
pAct	7.5741	NA	NA	333	NA	335	0	0.9784	NA	0.000000	1.000000
mol MW	416.0115	347.3833	8.4833	874	0.000000	335	541	102.1554	122.4016	1.435659	0.000369
donorHB	1.7127	1.6460	0.6169	874	0.537465	335	541	1.1986	1.7220	2.063902	0.000000
hb accptHB	5.9647	5.8593	0.4819	874	0.630035	335	541	2.3380	3.5181	2.264169	0.000000
QPlotPo/w	4.0278	2.6923	9.6849	874	0.000000	335	541	1.6253	2.1470	1.745117	0.000000
CIQPlotS	-5.7086	-3.7807	-14.0026	874	0.000000	335	541	1.7608	2.0708	1.383226	0.001375
PSA	83.3232	80.8916	0.7309	874	0.465057	335	541	36.5318	53.0748	2.110743	0.000000
RuleOfFive	0.4611	0.3097	3.1298	874	0.001810	335	541	0.7166	0.6659	1.157972	0.138204
RuleOfThree	2.6407	2.0178	10.1713	874	0.000000	335	541	0.7411	0.9439	1.622316	0.000002
number_of_rings	3.6537	2.9057	8.3072	874	0.000000	335	541	1.0380	1.4313	1.901440	0.000000
#ringatoms	19.3982	14.5444	11.6546	874	0.000000	335	541	5.2875	6.2856	1.413166	0.000654
#nonHatm	29.0449	24.3846	8.1917	874	0.000000	335	541	7.1866	8.6062	1.434115	0.000384
#rotor	5.7216	5.6706	0.1908	874	0.848735	335	541	3.3581	4.0476	1.452867	0.000236
ABE	14.5494	-2.2880	32.5144	874	0.000000	335	541	9.1543	6.1522	2.214034	0.000000
LE	0.3787	NA	NA	333	NA	335	0	0.1060	NA	0.000000	1.000000
LLE	3.3096	NA	NA	333	NA	335	0	2.1927	NA	0.000000	1.000000

HTS leads versus fragment hits

	Mean	Mean	t-value	df	p	Valid N	Valid N	Std.Dev.	Std.Dev.	F-ratio	p
	hts lead	frg hit				hts lead	frg hit	hts lead	frg hit	Variances	Variances
pAct	7.5741	5.1166	13.4535	371	0.000000	335	38	0.9784	1.63853	2.80444	0.000001
mol MW	416.0115	217.6229	11.6106	371	0.000000	335	38	102.1554	75.43460	1.83392	0.026837
donorHB	1.7127	1.5395	0.8539	371	0.393695	335	38	1.1986	1.05511	1.29058	0.348071
hb accptHB	5.9647	3.2224	6.9677	371	0.000000	335	38	2.3380	1.91084	1.49711	0.135753
QPlotPo/w	4.0278	1.9055	7.8726	371	0.000000	335	38	1.6253	1.01051	2.58682	0.000798
CIQPlotS	-5.7086	-2.7124	-10.1743	371	0.000000	335	38	1.7608	1.29832	1.83923	0.026156
PSA	83.3232	60.5769	3.7336	371	0.000218	335	38	36.5318	25.54358	2.04540	0.009694
RuleOfFive	0.4611	0.0263	3.7250	371	0.000226	335	38	0.7166	0.16222	19.51283	0.000000
RuleOfThree	2.6407	0.7105	15.0118	371	0.000000	335	38	0.7411	0.83530	1.27042	0.284004
number_of_rings	3.6537	1.9211	10.1006	371	0.000000	335	38	1.0380	0.58732	3.12319	0.000083
#ringatoms	19.3982	10.3421	10.3856	371	0.000000	335	38	5.2875	2.79262	3.58496	0.000014
#nonHatm	29.0449	15.1053	11.7286	371	0.000000	335	38	7.1866	4.13809	3.01608	0.000128
#rotor	5.7216	3.0263	4.8779	371	0.000002	335	38	3.3581	1.63553	4.21560	0.000002
ABE	14.5494	2.2528	7.8534	371	0.000000	335	38	9.1543	6.35414	2.07556	0.010357
LE	0.3787	0.3497	1.5874	371	0.113295	335	38	0.1060	0.11133	1.10278	0.639930
LLE	3.3096	3.2111	0.2675	371	0.789250	335	38	2.1927	1.75270	1.56506	0.098282

HTS leads versus fragment leads

	Mean	Mean	t-value	df	p	Valid N	Valid N	Std.Dev.	Std.Dev.	F-ratio	p
	hts lead	frg lead				hts lead	frg lead	hts lead	frg lead	Variances	Variances
pAct	7.5741	8.9670	-7.61788	371	0.000000	335	38	0.9784	1.6449	2.826295	0.000001
mol MW	416.0115	381.6451	1.94958	371	0.051981	335	38	102.1554	109.9758	1.158969	0.497810
donorHB	1.7127	1.9539	-1.17459	371	0.240915	335	38	1.1986	1.2079	1.015464	0.898103
hb accptHB	5.9647	5.7237	0.57053	371	0.568664	335	38	2.3380	3.4167	2.135538	0.000500
QPlotPo/w	4.0278	3.5960	1.56492	371	0.118455	335	38	1.6253	1.4845	1.198596	0.512859
CIQPlotS	-5.7086	-5.3465	-1.19810	371	0.231643	335	38	1.7608	1.8061	1.052178	0.784151
PSA	83.3232	87.5834	-0.66099	371	0.509028	335	38	36.5318	46.4996	1.620157	0.030764
RuleOfFive	0.4611	0.4211	0.32951	371	0.741955	335	38	0.7166	0.6423	1.244784	0.423537
RuleOfThree	2.6407	2.2368	2.94292	371	0.003456	335	38	0.7411	1.2178	2.700126	0.000003
number_of_rings	3.6537	3.3421	1.75243	371	0.080525	335	38	1.0380	1.0469	1.017333	0.892123
#ringatoms	19.3982	18.2895	1.22118	371	0.222794	335	38	5.2875	5.4421	1.059323	0.762756
#nonHatm	29.0449	26.8947	1.73287	371	0.083952	335	38	7.1866	7.7766	1.170940	0.470602
#rotor	5.7216	6.0263	-0.52635	371	0.598961	335	38	3.3581	3.5904	1.143181	0.535271
ABE	14.5494	11.1861	2.10811	371	0.035697	335	38	9.1543	8.5086	1.157533	0.616070
LE	0.3787	0.3584	1.10302	371	0.270758	335	38	0.1060	0.1181	1.240429	0.334085
LLE	3.3096	2.9414	0.99398	371	0.320882	335	38	2.1927	1.8894	1.346787	0.271484

Historical leads versus historical drugs

	Mean Leads	Mean Drugs	t-value	df	p	Valid N Leads	Valid N Drugs	Std.Dev. Leads	Std.Dev. Drugs	F-ratio Variances	p Variances
pAct	NA	NA	NA	0	NA	0	0	NA	NA	NA	NA
mol MW	302.5543	347.3833	-5.34999	924	0.000000	385	541	118.9105	122.4016	1.059579	0.559985
donorHB	1.7599	1.6460	0.92275	924	0.356395	385	541	1.8661	1.7220	1.174309	0.098900
hb accptHB	5.3292	5.8593	-2.22436	924	0.026384	385	541	3.3258	3.5181	1.119004	0.256004
QPlogPo/w	2.1700	2.6923	-3.40988	924	0.000680	385	541	2.3012	2.1470	1.148781	0.154290
CIQlogS	-3.1556	-3.7807	4.29262	924	0.000020	385	541	2.1468	2.0708	1.074678	0.458541
PSA	76.9787	80.8916	-1.04099	924	0.298172	385	541	55.9386	53.0748	1.110829	0.280131
RuleOfFive	0.2627	0.3097	-1.04003	924	0.298619	385	541	0.6310	0.6659	1.113596	0.277094
RuleOfThree	1.7232	2.0178	-4.46425	924	0.000009	385	541	0.9652	0.9439	1.045629	0.644733
number_of_rings	2.5809	2.9057	-3.30492	924	0.000987	385	541	1.5122	1.4313	1.116256	0.243461
#ringatoms	12.7740	14.5444	-3.99273	924	0.000071	385	541	6.5645	6.2856	1.090709	0.371966
#nonHatm	21.3729	24.3846	-5.08001	924	0.000000	385	541	8.4924	8.6062	1.026982	0.790796
#rotor	4.8757	5.6706	-2.97794	924	0.002984	385	541	3.5579	4.0476	1.294236	0.009346
ABE	-3.2350	-2.2880	-2.25219	924	0.024546	385	541	6.4298	6.1522	1.092282	0.348901
LE	NA	NA	NA	0	NA	0	0	NA	NA	NA	NA
LLE	NA	NA	NA	0	NA	0	0	NA	NA	NA	NA

Historical leads versus fragment hits

	Mean Leads	Mean frg hit	t-value	df	p	Valid N Leads	Valid N frg hit	Std.Dev. Leads	Std.Dev. frg hit	F-ratio Variances	p Variances
pAct	NA	5.1166	NA	36	NA	0	38	NA	1.63853	0.00000	1.000000
mol MW	302.5543	217.6229	4.30796	421	0.000021	385	38	118.9105	75.43460	2.48485	0.001236
donorHB	1.7599	1.5395	0.71540	421	0.474790	385	38	1.8661	1.05511	3.12791	0.000079
hb accptHB	5.3292	3.2224	3.83492	421	0.000146	385	38	3.3258	1.91084	3.02922	0.000118
QPlogPo/w	2.1700	1.9055	0.70062	421	0.483957	385	38	2.3012	1.01051	5.18594	0.000000
CIQlogS	-3.1556	-2.7124	-1.24761	421	0.212923	385	38	2.1468	1.29832	2.73405	0.000411
PSA	76.9787	60.5769	1.78600	421	0.074877	385	38	55.9386	25.54358	4.79579	0.000000
RuleOfFive	0.2627	0.0263	2.29869	421	0.022050	385	38	0.6310	0.16222	15.13194	0.000000
RuleOfThree	1.7232	0.7105	6.22035	421	0.000000	385	38	0.9652	0.83530	1.33526	0.284935
number_of_rings	2.5809	1.9211	2.66725	421	0.007948	385	38	1.5122	0.58732	6.62894	0.000000
#ringatoms	12.7740	10.3421	2.25973	421	0.024389	385	38	6.5645	2.79262	5.52568	0.000000
#nonHatm	21.3729	15.1053	4.48878	421	0.000009	385	38	8.4924	4.13809	4.21176	0.000001
#rotor	4.8757	3.0263	3.16571	421	0.001669	385	38	3.5579	1.63553	4.73230	0.000000
ABE	-3.2350	2.2528	-4.89754	421	0.000001	385	38	6.4298	6.35414	1.02396	0.980069
LE	NA	0.3497	NA	36	NA	0	38	NA	0.11133	0.00000	1.000000
LLE	NA	3.2111	NA	36	NA	0	38	NA	1.75270	0.00000	1.000000

Historical leads versus fragment leads

	Mean Leads	Mean frg lead	t-value	df	p	Valid N Leads	Valid N frg lead	Std.Dev. Leads	Std.Dev. frg lead	F-ratio Variances	p Variances
pAct	NA	8.9670	NA	36	NA	0	38	NA	1.6449	0.000000	1.000000
mol MW	302.5543	381.6451	-3.9233	421	0.000103	385	38	118.9105	109.9758	1.169085	0.576588
donorHB	1.7599	1.9539	-0.6267	421	0.531210	385	38	1.8661	1.2079	2.386749	0.001930
hb accptHB	5.3292	5.7237	-0.6930	421	0.488745	385	38	3.3258	3.4167	1.055432	0.773371
QPlogPo/w	2.1700	3.5960	-3.7350	421	0.000216	385	38	2.3012	1.4845	2.402894	0.001793
CIQlogS	-3.1556	-5.3465	6.0629	421	0.000000	385	38	2.1468	1.8061	1.412805	0.200253
PSA	76.9787	87.5834	-1.1272	421	0.260351	385	38	55.9386	46.4996	1.447191	0.170696
RuleOfFive	0.2627	0.4211	-1.4674	421	0.143073	385	38	0.6310	0.6423	1.035933	0.832951
RuleOfThree	1.7232	2.2368	-3.0336	421	0.002578	385	38	0.9652	1.2178	1.591736	0.036897
number_of_rings	2.5809	3.3421	-3.0291	421	0.002607	385	38	1.5122	1.0469	2.086332	0.007762
#ringatoms	12.7740	18.2895	-4.9965	421	0.000001	385	38	6.5645	5.4421	1.455035	0.164550
#nonHatm	21.3729	26.8947	-3.8385	421	0.000144	385	38	8.4924	7.7766	1.192576	0.524758
#rotor	4.8757	6.0263	-1.8928	421	0.059124	385	38	3.5579	3.5904	1.018363	0.888201
ABE	-3.2350	11.1861	-12.4647	421	0.000000	385	38	6.4298	8.5086	1.751121	0.012886
LE	NA	0.3584	NA	36	NA	0	38	NA	0.1181	0.000000	1.000000
LLE	NA	2.9414	NA	36	NA	0	38	NA	1.8894	0.000000	1.000000

Historical drugs versus fragment hits

	Mean Drugs	Mean frg hit	t-value	df	p	Valid N Drugs	Valid N frg hit	Std.Dev. Drugs	Std.Dev. frg hit	F-ratio Variances	p Variances
pAct	NA	5.1166	NA	36	NA	0	38	NA	1.63853	0.00000	1.000000
mol MW	347.3833	217.6229	6.44064	577	0.000000	541	38	122.4016	75.43460	2.63289	0.000579
donorHB	1.6460	1.5395	0.37574	577	0.707258	541	38	1.7220	1.05511	2.66362	0.000506
hb accptHB	5.8593	3.2224	4.56747	577	0.000006	541	38	3.5181	1.91084	3.38971	0.000025
QPlogPo/w	2.6923	1.9055	2.23910	577	0.025554	541	38	2.1470	1.01051	4.51430	0.000000
CIQlogS	-3.7807	-2.7124	-3.13270	577	0.001825	541	38	2.0708	1.29832	2.54407	0.000863
PSA	80.8916	60.5769	2.33775	577	0.019762	541	38	53.0748	25.54358	4.31731	0.000001
RuleOfFive	0.3097	0.0263	2.61507	577	0.009169	541	38	0.6659	0.16222	16.85087	0.000000
RuleOfThree	2.0178	0.7105	8.29555	577	0.000000	541	38	0.9439	0.83530	1.27699	0.363394
number_of_rings	2.9057	1.9211	4.21334	577	0.000029	541	38	1.4313	0.587325	5.93855	0.000000
#ringatoms	14.5444	10.3421	4.08832	577	0.000050	541	38	6.2856	2.79262	5.06614	0.000000
#nonHatm	24.3846	15.1053	6.58547	577	0.000000	541	38	8.6062	4.13809	4.32541	0.000001
#rotor	5.6706	3.0263	3.99994	577	0.000072	541	38	4.0476	1.63553	6.12471	0.000000
ABE	-2.2880	2.2528	-4.27936	577	0.000022	541	38	6.1522	6.35414	1.06672	0.736805
LE	NA	0.3497	NA	36	NA	0	38	NA	0.11133	0.00000	1.000000
LLE	NA	3.2111	NA	36	NA	0	38	NA	1.75270	0.00000	1.000000

Historical drugs versus fragment leads

	Mean Drugs	Mean frg lead	t-value	df	p	Valid N Drugs	Valid N frg lead	Std.Dev. Drugs	Std.Dev. frg lead	F-ratio Variances	p Variances
pAct	NA	8.9670	NA	36	NA	0	38	NA	1.6449	0.000000	1.000000
mol MW	347.3833	381.6451	-1.6753	577	0.094453	541	38	122.4016	109.9758	1.238738	0.428999
donorHB	1.6460	1.9539	-1.0823	577	0.279598	541	38	1.7220	1.2079	2.032471	0.009534
hb accptHB	5.8593	5.7237	0.2296	577	0.818499	541	38	3.5181	3.4167	1.060234	0.864333
QPlogPo/w	2.6923	3.5960	-2.5481	577	0.011104	541	38	2.1470	1.4845	2.091691	0.007158
CIQlogS	-3.7807	-5.3465	4.5326	577	0.000007	541	38	2.0708	1.8061	1.314630	0.307408
PSA	80.8916	87.5834	-0.7556	577	0.450187	541	38	53.0748	46.4996	1.302802	0.324132
RuleOfFive	0.3097	0.4211	-0.9969	577	0.319258	541	38	0.6659	0.6423	1.074969	0.820435
RuleOfThree	2.0178	2.2368	-1.3498	577	0.177641	541	38	0.9439	1.2178	1.664365	0.019121
number_of_rings	2.9057	3.3421	-1.8444	577	0.065631	541	38	1.4313	1.0469	1.869044	0.021023
#ringatoms	14.5444	18.2895	-3.5731	577	0.000384	541	38	6.2856	5.4421	1.334027	0.281624
#nonHatm	24.3846	26.8947	-1.7451	577	0.081539	541	38	8.6062	7.7766	1.224755	0.455308
#rotor	5.6706	6.0263	-0.5263	577	0.598871	541	38	4.0476	3.5904	1.270899	0.373239
ABE	-2.2880	11.1861	-12.3848	577	0.000000	541	38	6.1522	8.5086	1.912719	0.003050
LE	NA	0.3584	NA	36	NA	0	38	NA	0.1181	0.000000	1.000000
LLE	NA	2.9414	NA	36	NA	0	38	NA	1.8894	0.000000	1.000000

Fragment hits versus fragment leads

	Mean frg hit	Mean frg lead	t-value	df	p	Valid N frg hit	Valid N frg lead	Std.Dev. frg hit	Std.Dev. frg lead	F-ratio Variances	p Variances
pAct	5.1166	8.9670	-10.2231	74	0.000000	38	38	1.63853	1.6449	1.00779	0.981289
mol MW	217.6229	381.6451	-7.5817	74	0.000000	38	38	75.43460	109.9758	2.12546	0.024337
donorHB	1.5395	1.9539	-1.5931	74	0.115408	38	38	1.05511	1.2079	1.31053	0.414658
hb accptHB	3.2224	5.7237	-3.9388	74	0.000184	38	38	1.91084	3.4167	3.19714	0.000627
QPlogPo/w	1.9055	3.5960	-5.8028	74	0.000000	38	38	1.01051	1.4845	2.15821	0.021655
CIQlogS	-2.7124	-5.3465	7.3000	74	0.000000	38	38	1.29832	1.8061	1.93520	0.048057
PSA	60.5769	87.5834	-3.1380	74	0.002443	38	38	25.54358	46.4996	3.31386	0.000432
RuleOfFive	0.0263	0.4211	-3.6732	74	0.000450	38	38	0.16222	0.6423	15.67568	0.000000
RuleOfThree	0.7105	2.2368	-6.3715	74	0.000000	38	38	0.83530	1.2178	2.12538	0.024344
number_of_rings	1.9211	3.3421	-7.2975	74	0.000000	38	38	0.58732	1.0469	3.17732	0.000668
#ringatoms	10.3421	18.2895	-8.0092	74	0.000000	38	38	2.79262	5.4421	3.79763	0.000098
#nonHatm	15.1053	26.8947	-8.2501	74	0.000000	38	38	4.13809	7.7766	3.53165	0.000219
#rotor	3.0263	6.0263	-4.6873	74	0.000012	38	38	1.63553	3.5904	4.81920	0.000006
ABE	2.2528	11.1861	-5.0474	74	0.000003	38	38	6.35414	8.5086	1.79309	0.088540
LE	0.3497	0.3584	-0.3310	74	0.741606	38	38	0.11133	0.1181	1.12482	0.722415
LLE	3.2111	2.9414	0.6451	74	0.520886	38	38	1.75270	1.8894	1.16207	0.650167

Historical leads versus non-fragment alternative leads

	Mean Leads	Mean nonfragalt	t-value	df	p	Valid N Leads	Valid N nonfragalt	Std.Dev. Leads	Std.Dev. nonfragalt	F-ratio Variances	p Variances
pAct	NA	9.4976	NA	44	NA	0	46	NA	1.8529	0.000000	1.000000
mol MW	302.5543	468.1819	-8.7803	429	0.000000	385	46	118.9105	131.1583	1.216608	0.339968
donorHB	1.7599	2.2228	-1.6117	429	0.107814	385	46	1.8661	1.5458	1.457277	0.123178
hb accptHB	5.3292	8.0761	-5.3223	429	0.000000	385	46	3.3258	3.0234	1.210036	0.440435
QPlogPo/w	2.1700	3.5472	-3.8218	429	0.000154	385	46	2.3012	2.2833	1.015764	0.990617
CIQlogS	-3.1556	-5.7693	7.6387	429	0.000000	385	46	2.1468	2.4496	1.302037	0.202289
PSA	76.9787	117.5772	-4.6552	429	0.000004	385	46	55.9386	53.2815	1.102227	0.710889
RuleOfFive	0.2627	0.8696	-5.7933	429	0.000000	385	46	0.6310	0.9094	2.076932	0.000279
RuleOfThree	1.7232	2.8043	-7.3135	429	0.000000	385	46	0.9652	0.7489	1.661069	0.039222
number_of_rings	2.5809	3.3913	-3.5357	429	0.000452	385	46	1.5122	1.0215	2.191378	0.001851
#ringatoms	12.7740	18.4565	-5.6511	429	0.000000	385	46	6.5645	5.1021	1.655434	0.040505
#nonHatm	21.3729	31.8261	-7.8537	429	0.000000	385	46	8.4924	8.4913	1.000260	1.000000
#rotor	4.8757	8.3478	-6.0385	429	0.000000	385	46	3.5579	4.4433	1.559635	0.031128
ABE	-3.2350	16.7457	-18.5553	429	0.000000	385	46	6.4298	9.9652	2.402022	0.000009
LE	NA	0.3191	NA	44	NA	0	46	NA	0.0976	0.000000	1.000000
LLE	NA	3.3771	NA	44	NA	0	46	NA	2.7135	0.000000	1.000000

Fragment leads versus non-fragment alternative leads

	Mean frg lead	Mean nonfragalt	t-value	df	p	Valid N frg lead	Valid N nonfragalt	Std.Dev. frg lead	Std.Dev. nonfragalt	F-ratio Variances	p Variances
pAct	8.9670	9.4976	-1.37378	82	0.173253	38	46	1.6449	1.8529	1.268820	0.459311
mol MW	381.6451	468.1819	-3.23424	82	0.001759	38	46	109.9758	131.1583	1.422319	0.272947
donorHB	1.9539	2.2228	-0.87397	82	0.384690	38	46	1.2079	1.5458	1.637814	0.125451
hb accptHB	5.7237	8.0761	-3.34633	82	0.001238	38	46	3.4167	3.0234	1.277111	0.431296
QPlogPo/w	3.5960	3.5472	0.11342	82	0.909971	38	46	1.4845	2.2833	2.365601	0.008263
CIQlogS	-5.3465	-5.7693	0.88354	82	0.379527	38	46	1.8061	2.4496	1.839525	0.059134
PSA	87.5834	117.5772	-2.71828	82	0.008006	38	46	46.4996	53.2815	1.312970	0.397002
RuleOfFive	0.4211	0.8696	-2.55749	82	0.012385	38	46	0.6423	0.9094	2.004891	0.031746
RuleOfThree	2.2368	2.8043	-2.61922	82	0.010497	38	46	1.2178	0.7489	2.643984	0.002081
number_of_rings	3.3421	3.3913	-0.21725	82	0.828550	38	46	1.0469	1.0215	1.050350	0.868217
#ringatoms	18.2895	18.4565	-0.14492	82	0.885129	38	46	5.4421	5.1021	1.137728	0.674788
#nonHatm	26.8947	31.8261	-2.75123	82	0.007305	38	46	7.7766	8.4913	1.192266	0.585938
#rotor	6.0263	8.3478	-2.59524	82	0.011197	38	46	3.5904	4.4433	1.531512	0.184998
ABE	11.1861	16.7457	-2.67040	82	0.009174	38	46	8.5086	9.9652	1.371705	0.335201
LE	0.3584	0.3191	1.67027	82	0.098678	38	46	0.1181	0.0976	1.464111	0.221915
LLE	2.9414	3.3771	-0.83606	82	0.405553	38	46	1.8894	2.7135	2.062522	0.025562

HTS leads versus non-fragment alternative leads

	Mean hts lead	Mean nonfragalt	t-value	df	p	Valid N hts lead	Valid N nonfragalt	Std.Dev. hts lead	Std.Dev. nonfragalt	F-ratio Variances	p Variances
pAct	7.5741	9.4976	-10.8755	379	0.000000	335	46	0.9784	1.8529	3.586061	0.000000
mol MW	416.0115	468.1819	-3.1288	379	0.001891	335	46	102.1554	131.1583	1.648423	0.015445
donorHB	1.7127	2.2228	-2.6051	379	0.009547	335	46	1.1986	1.5458	1.663142	0.013645
hb accptHB	5.9647	8.0761	-5.5254	379	0.000000	335	46	2.3380	3.0234	1.672163	0.012641
QPlogPo/w	4.0278	3.5472	1.7801	379	0.075868	335	46	1.6253	2.2833	1.973643	0.000821
CIQlogS	-5.7086	-5.7693	0.2079	379	0.835431	335	46	1.7608	2.4496	1.935508	0.001180
PSA	83.3232	117.5772	-5.5983	379	0.000000	335	46	36.5318	53.2815	2.127218	0.000183
RuleOfFive	0.4611	0.8696	-3.4997	379	0.000521	335	46	0.7166	0.9094	1.610634	0.021134
RuleOfThree	2.6407	2.8043	-1.4022	379	0.161681	335	46	0.7411	0.7489	1.021234	0.880194
number_of_rings	3.6537	3.3913	1.6110	379	0.108023	335	46	1.0380	1.0215	1.032454	0.932914
#ringatoms	19.3982	18.4565	1.1371	379	0.256216	335	46	5.2875	5.1021	1.074013	0.797004
#nonHatm	29.0449	31.8261	-2.4047	379	0.016665	335	46	7.1866	8.4913	1.396072	0.108867
#rotor	5.7216	8.3478	-4.7645	379	0.000003	335	46	3.3581	4.4433	1.750795	0.006399
ABE	14.5494	16.7457	-1.5090	379	0.132136	335	46	9.1543	9.9652	1.185025	0.407824
LE	0.3787	0.3191	3.6009	379	0.000361	335	46	0.1060	0.0976	1.180326	0.507230
LLE	3.3096	3.3771	-0.1897	379	0.849625	335	46	2.1927	2.7135	1.531439	0.039816