

Additional table 1: Table of *Standard Search Matrices* with their relative entropy as listed in **FASTA** (Version: 36.3.8d, found in **upam.h**). Comparable PFASUM substitution matrices are listed with their respective entropy. Note, we list entries with n/a where no comparable PFASUM matrix can be found due to the distribution of entropies of possible PFASUM matrices. No matrix entropy is listed for **OPTIMA5** and **MD** matrices.

matrix	rel. entropy (bit)	matrix	rel. entropy (bit)
BLOSUM50	0.4808	PFASUM59	0.4849
BLOSUM62	0.6979	PFASUM78	0.6931
BLOSUM80	0.9868	n/a	n/a
PAM120	0.9790	n/a	n/a
PAM250	0.3540	PFASUM45	0.3529
VTML10	3.4680	n/a	n/a
VTML20	2.9125	n/a	n/a
VTML40	2.2675	n/a	n/a
VTML80	1.4279	n/a	n/a
VTML160	0.5625	PFASUM67	0.5649
VTML200	0.4121	PFASUM51	0.4084