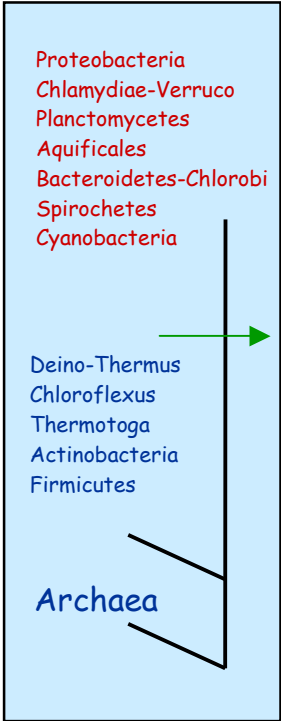


Main Line Signature in Hsp60 Protein

Gupta, R.S.(1998) Microbiol.Mol.Biol.Rev 62:1435-91;
Gupta (2000) FEMS Microbiol. Rev. 24, 367- 402

		144			178
Proteobacteria	E.coli	P06139	IAQVGTISA	N	SDETVGKLI AEAMDKV GKEGVITVE
	Pas. multocida	NP_246044	-E-----		--SI--QI--Q-----
	Pse. aeruginosa	NP_253075	-----		---SI-QI---E-----
	V. cholerae	AAF27528	-----		--AS--NI----ER--RD---
	Nei. meningitidis	CAA80531	----S---		---Q--AI----E-----
	Ral. solanacearum	NP_518763	----A---		---SI-AR-----
	C. crescentus	NP_419502	-----		G-KE--EM--K-----N-----
	A. tumefaciens	P30779	V-----		GERQI-LD---QR--N-----
	Camp. jejuni	e1287421	---A---		---KI--N---D--E---D-----
	Hel. pylori	P42383	-T-A---		--HNI----D--E---D-----
	Geo. sulfurreducens	NP_954380	-----		N-K-I-DI--Q--E-----
	Bde. bacteriovorus	NP_967123	V---A---		N-KEI-QML-D---R----I-
	Desulf. vulgaris	ZP_00129431	-----		--S-I-NI---S-----
	Cal. hydrogenophilum	AA086572	-E-A---		N-TNI--T-RD-
	Aquificales	Sul. azorense	TIGR	-E-A---	
Per. marina		TIGR	-E-A---		N-PEI--I--D--E---D-----
Hydro. marinus		AAP83542	-E-IA---		N-PEI--I--RSR-EN--D-----
Tc. ruber		AAP82774	-E-A---		N-P-I--I--P-EAG-R
Aqu. aeolicus		2984379	-E-A---		N-PEI--I--D--EE---D-----
Proto. amoebophila		NP_008179	---A---		N-AEI-EM--Q-IE---RD-T---
Sim. negevensis		TIGR	-N-A---		N-PD--TI---E---D-T--I
Verrucomicrobim, Planctomycetes and Chlamydiales	Chl. muridarum	AAF39243	---A---		N-AEI-N-----E---N-S---
	Chl. trachomatis	NP_219613	---A---		N-AEI-N-----E---N-S---
	Chlam. pneumoniae	CAA35766	---A---		N-AEI-N-----E---N-S---
	Chlam. pecorum	TIGR	---A---		N-SEI-N-----E---N-S---
	Chlam. psittaci	TIGR	---A---		N-SEI-N-----E---N-S---
	Chlam. caviae	NP_829507	---A---		N-AEI-N-----E---N-S---
	Chlam. abortus	YP_220012	---A---		N-AEI-N-----E---N-S---
	Chlam. felis	YP_515282	---A---		N-AEI-N-----E---N-S---
	Gem. obscuriglobus	TIGR	LK-AA---		N-PKI-E-M---FE---RD-----
	Rho. baltica	NP_868643	V-H-A---		N-NVI-E-L-D-LER---D-----
	Bla. marina	EAQ77046	V-H-A---		N-HAI-E---LYR---D-----
	Ver. spinosum	TIGR	---A-V---		W-TEI-NI--DA--K---D-T---
	Cb. tepidum	AAM71772	-----		N-PEI-E-----D-----
	Fi. succinogenes	AY017380	---A---		N-PEI-E-L-N--E---ND---I-
	Bacteroidetes, Chlorobi, Spirochetes and Cyanobacteria	Bact. forsythus	CAB43992	-EH-AK---	
Po. gingivalis		D17398	-EH-AK---		G--NI-S-----R--K-----
Bor. burgodferi		P27575	---AS---		N-SYI-EK-----D-----
Tre. pallidum		AAC65026	V-H-ASV---		N-KEI-RIL-S-IE---ND---D-D
Gloe. violaceus		NP_925843	--E-A---S	G	N--EI-QM-----
Nostoc sp. PCC 7120		NP_487702	---S---	G	N-DE--QM-----SL-
Deinococcus/ Thermus		The. thermophilus	P45746	-EE-A---	
	D. radiodurans	G75499	---K-AG---		N---QE--S-----I-
	T. maritima	H72367	--H-AA---		NSAEI-E-----ED-----
Actinobacteria	Myc. tuberculosis	P09239	--ATAA---		G-QSI-D-----N-----
	Str. coelicolor	Q00767	--A-AAL---		Q-KQ--E-----D-----
	Strep. pyogenes	e187584	---AAV-S		RS-K--EY-S---ER--ND---I-
Firmicutes	Clo. acetobutylicum	P26821	--R-AA---		A--KI-----D--E---N-----
	Sta. aureus	2554919	----A---		A--E--RY-S---E---ND---SI-
	Bac. subtilis	NP_654198	----AA---		A--E--Q-----ER--ND---L-



A 1 aa insert in Hsp60 protein that is commonly present in various species belonging to Proteobacteria, *Bacteroidetes-Chlorobi*, *Chlamydiales*, *Planctomycetes*, *V. spinosum*, *Aquificales*, *Spirochetes* and *Cyanobacteria* phyla. The absence of this insert in *Deinococcus-Thermus*, *Chloroflexi*, *Actinobacteria*, *Thermotoga*, *Firmicutes* (rooting established based on other described signatures) indicates that the groups lacking this insert are ancestral. The genetic change (RGC) responsible for this insert likely occurred at the evolutionary stage indicated in the interpretive diagram. Dashes indicated identity with the amino acid on the top line. Sequence information for Hsp60 is available for more than >1000 species and except for two exceptions (*M.penetrans* and *Hal. Orenii*) all other sequences from these groups behaved in the indicated manner. Sequences for a few of the species (marked TIGR) were obtained by Blast searches at The Institute for Genomic Research website at <http://www.tigr.org>.