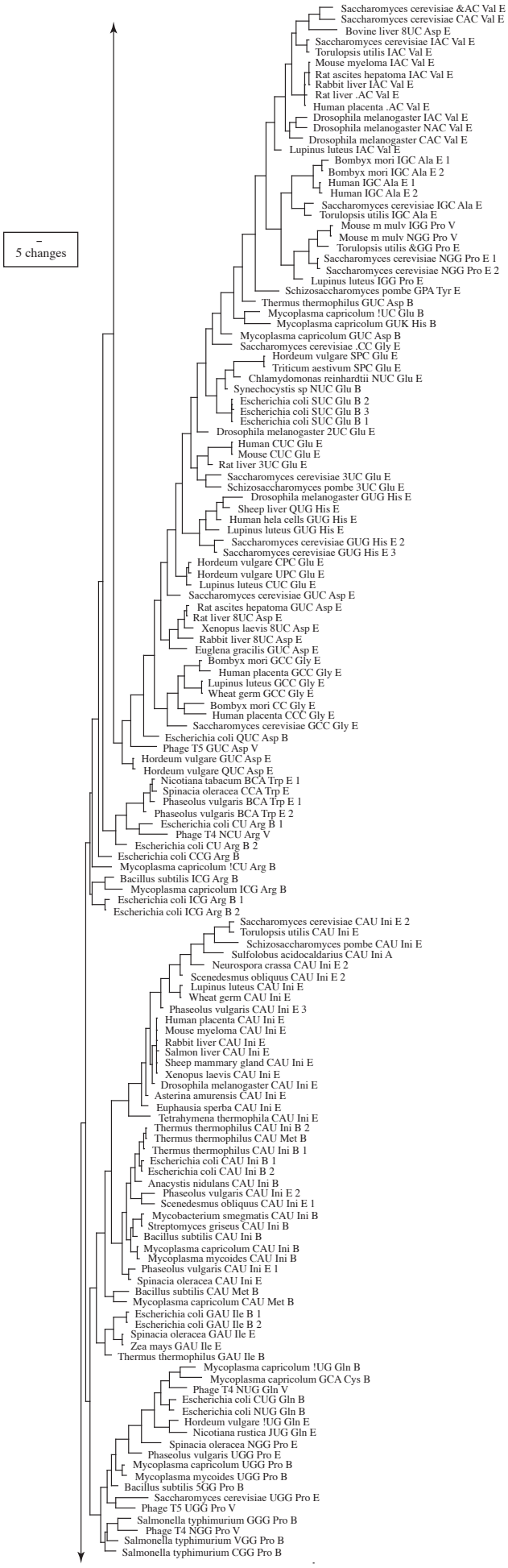
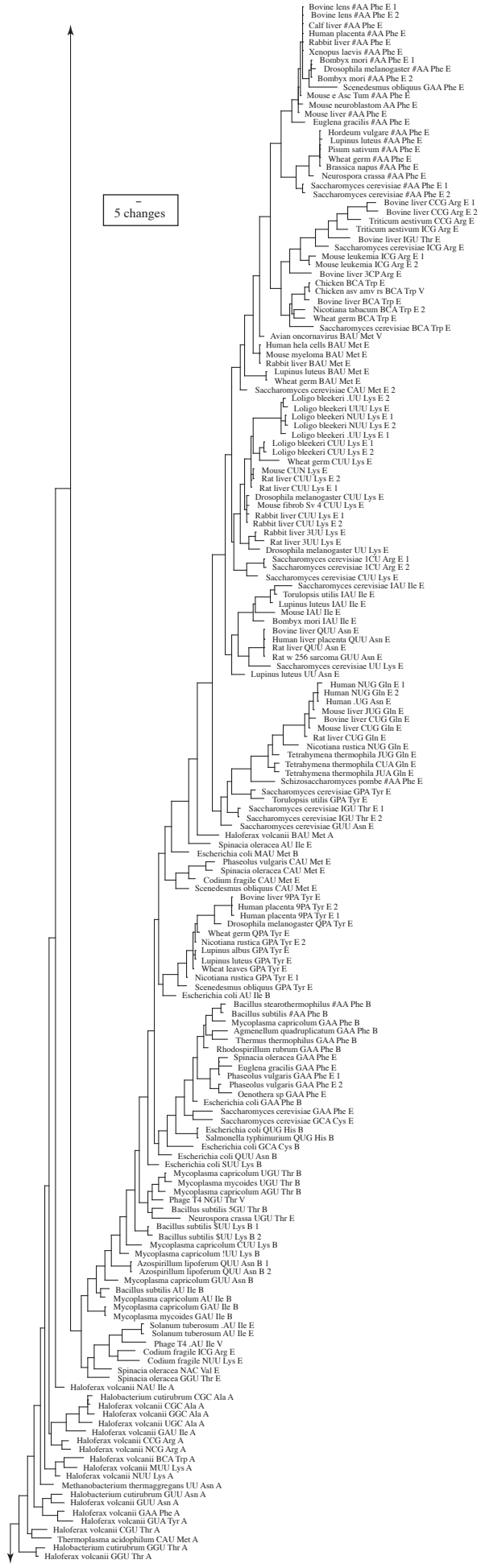
5 changes
Ascaris suum ACG Arg E
Ascaris suum GAA Phe E
Halocynthia roretzi UCU Gly E
Halocynthia roretzi NCU Gly E
Aedes albopictus UCC Gly E
Bovine liver UGU Thr E
Aedes albopictus UCG Arg E
Bos taurus GAA Phe E
Rat Morris hepatoma GAA Phe E
Hamster UCG Arg E
Rat Morris hepatoma UCG Arg E
Bovine liver UCG Arg E
Bovine liver UCC Gly E
Bovine liver NCA Trp E
Rat Morris hepatoma NCA Trp E
Asterias amurensis QUC Asp E
Aedes albopictus NUG Gln E
Bovine liver NUC Glu E
Bovine liver AU Ini E
Bovine liver CAU Ini E
Chicken AU Met E
Ascaris suum AU Met E
Aedes albopictus CAU Ini E
Aedes albopictus NUC Glu E
Bovine liver GAU Ile E
Human GAU Ile E
Aedes albopictus GAU Ile E
Rat liver QUC Asp E
Rat Morris hepatoma GUC Asp E
Hamster GUC Asp E
Marsupial QUC Asp E
Aedes albopictus GUC Asp E
Asterias amurensis QUG His E
Bovine liver GCU Ser E
Bovine heart GCU Ser E
Human GCU Ser E
Hamster GCU Ser E
Ascaris suum PCU Arg E
Ascaris suum UCU Ser E
Aedes albopictus GCU Ser E
Halocynthia roretzi GCU Gly E
Loligo bleekeri 7CU Ser E
Hamster NUU Lys E
Rat liver NUU Lys E
Bovine liver NUU Lys E
Asterias amurensis GPU Asn E
Asterias amurensis GUU Asn E
Rat liver UAC Val E
Rat Morris hepatoma UAC Val E
Bovine liver UAC Val E
Aedes albopictus CUU Lys E
Aedes albopictus UAC Val E
Rat Morris hepatoma UAG Leu E 1
Rat Morris hepatoma UAG Leu E 2
Rat liver UAG Leu E
Bovine liver UAG Leu E
Asterias amurensis CUU Lys E
Saccharomyces cerevisiae NCU Arg E
Saccharomyces cerevisiae ACG Arg E
Saccharomyces cerevisiae CAU Ini E 1
Neurospora crassa CAU Ini E 1
Saccharomyces cerevisiae CAU Met E 1
Saccharomyces cerevisiae GAU Ile E
Saccharomyces cerevisiae NUU Lys E
Saccharomyces cerevisiae UAG Thr E
Saccharomyces cerevisiae GUG His E 1
Saccharomyces cerevisiae NCC Gly E
Saccharomyces cerevisiae !CA Trp E
Neurospora crassa NCA Trp E
Bacillus subtilis CCA Trp B
Spiroplasma citri NCA Trp B
Tetrahymena thermophila !CA Trp E
Spiroplasma citri CCA Trp B
Mycoplasma capricolum BCA Trp B
Escherichia coli CCA Trp B
Mycoplasma capricolum CA Trp B
Mycoplasma capricolum UCC Gly B
Mycoplasma mycoides UCC Gly B
Escherichia coli CCC Gly B
Salmonella typhimurium CCC Gly B
Bacillus subtilis !CC Gly B
Streptomyces coelicolor CCC Gly B
Escherichia coli NCC Gly B
Salmonella typhimurium NCC Gly B
Codium fragile UCC Gly E
Phage T4 NCC Gly V
Staphylococcus epidermidis UCC Gly B 1
Staphylococcus epidermidis UCC Gly B 2
Escherichia coli GGC Ala B
Escherichia coli VGC Ala B 2
Escherichia coli VGC Ala B 1
Bacillus subtilis 5GC Ala B
Mycoplasma capricolum UGC Ala B
Mycoplasma mycoides UGC Ala B
Bacillus subtilis 5AC Val B
Escherichia coli VAC Val B
Mycoplasma capricolum UAC Val B
Mycoplasma mycoides UAC Val B
Bovine liver NAA Leu E
Human .AA Leu E
Asterias amurensis GUA Tyr E
Tetrahymena pyriformis GAA Phe E
Bovine UGA Ser E
Chicken UGA Ser E
Neurospora crassa UAC Val E
Neurospora crassa UGC Ala E
Phage T5 GUU Asn V
Phage T5 UUG Gln V
Escherichia coli GGU Thr B 1
Escherichia coli GGU Thr B 2
Escherichia coli GCC Gly B
Escherichia coli GAC Val B 1
Escherichia coli GAC Val B 2
Bacillus stearothermophilus GAC Val B


5 changes
Saccharomyces cerevisiae &AC Val E
Saccharomyces cerevisiae CAC Val E
Bovine liver 8UC Asp E
Saccharomyces cerevisiae IAC Val E
Torulopsis utilis IAC Val E
Mouse myeloma IAC Val E
Rat ascites hepatoma IAC Val E
Rabbit liver IAC Val E
Rat liver .AC Val E
Human placenta .AC Val E
Drosophila melanogaster IAC Val E
Drosophila melanogaster NAC Val E
Drosophila melanogaster CAC Val E
Lupinus luteus IAC Val E
Bombyx mori IGC Ala E 1
Bombyx mori IGC Ala E 2
Human IGC Ala E 1
Human IGC Ala E 2
Saccharomyces cerevisiae IGC Ala E
Torulopsis utilis IGC Ala E
Mouse m mulv IGG Pro V
Mouse m mulv NGG Pro V
Torulopsis utilis &GG Pro E
Saccharomyces cerevisiae NGG Pro E 1
Saccharomyces cerevisiae NGG Pro E 2
Lupinus luteus IGG Pro E
Schizosaccharomyces pombe GPA Tyr E
Thermus thermophilus GUC Asp B
Mycoplasma capricolum !UC Glu B
Mycoplasma capricolum GUK His B
Mycoplasma capricolum GUC Asp B
Saccharomyces cerevisiae .CC Gly E
Hordeum vulgare SPC Glu E
Triticum aestivum SPC Glu E
Chlamydomonas reinhardtii NUC Glu E
Synechocystis sp NUC Glu B
Escherichia coli SUC Glu B 2
Escherichia coli SUC Glu B 3
Escherichia coli SUC Glu B 1
Drosophila melanogaster 2UC Glu E
Human CUC Glu E
Mouse CUC Glu E
Rat liver 3UC Glu E
Saccharomyces cerevisiae 3UC Glu E
Schizosaccharomyces pombe 3UC Glu E
Drosophila melanogaster GUG His E
Sheep liver QUG His E
Human hela cells GUG His E
Lupinus luteus GUG His E
Saccharomyces cerevisiae GUG His E 2
Saccharomyces cerevisiae GUG His E 3
Hordeum vulgare CPC Glu E
Hordeum vulgare UPC Glu E
Lupinus luteus CUC Glu E
Saccharomyces cerevisiae GUC Asp E
Rat ascites hepatoma GUC Asp E
Rat liver 8UC Asp E
Xenopus laevis 8UC Asp E
Rabbit liver 8UC Asp E
Euglena gracilis GUC Asp E
Bombyx mori GCC Gly E
Human placenta GCC Gly E
Lupinus luteus GCC Gly E
Wheat germ GCC Gly E
Bombyx mori CC Gly E
Human placenta CCC Gly E
Saccharomyces cerevisiae GCC Gly E
Escherichia coli QUC Asp B
Phage T5 GUC Asp V
Hordeum vulgare GUC Asp E
Hordeum vulgare QUC Asp E
Nicotiana tabacum BCA Trp E 1
Spinacia oleracea CCA Trp E
Phaseolus vulgaris BCA Trp E 1
Phaseolus vulgaris BCA Trp E 2
Escherichia coli CU Arg B 1
Phage T4 NCU Arg V
Escherichia coli CU Arg B 2
Escherichia coli CCG Arg B
Mycoplasma capricolum !CU Arg B
Bacillus subtilis ICG Arg B
Mycoplasma capricolum ICG Arg B
Escherichia coli ICG Arg B 1
Escherichia coli ICG Arg B 2
Saccharomyces cerevisiae CAU Ini E 2
Torulopsis utilis CAU Ini E
Schizosaccharomyces pombe CAU Ini E
Sulfolobus acidocaldarius CAU Ini A
Neurospora crassa CAU Ini E 2
Scenedesmus obliquus CAU Ini E 2
Lupinus luteus CAU Ini E
Wheat germ CAU Ini E
Phaseolus vulgaris CAU Ini E 3
Human placenta CAU Ini E
Mouse myeloma CAU Ini E
Rabbit liver CAU Ini E
Salmon liver CAU Ini E
Sheep mammary gland CAU Ini E
Xenopus laevis CAU Ini E
Drosophila melanogaster CAU Ini E
Asterina amurensis CAU Ini E
Euphausia sperba CAU Ini E
Tetrahymena thermophila CAU Ini E
Thermus thermophilus CAU Ini B 2
Thermus thermophilus CAU Met B
Thermus thermophilus CAU Ini B 1
Escherichia coli CAU Ini B 1
Escherichia coli CAU Ini B 2
Anacystis nidulans CAU Ini B
Phaseolus vulgaris CAU Ini E 2
Scenedesmus obliquus CAU Ini E 1
Mycobacterium smegmatis CAU Ini B
Streptomyces griseus CAU Ini B
Bacillus subtilis CAU Ini B
Mycoplasma capricolum CAU Ini B
Mycoplasma mycoides CAU Ini B
Phaseolus vulgaris CAU Ini E 1
Spinacia oleracea CAU Ini E
Bacillus subtilis CAU Met B
Mycoplasma capricolum CAU Met B
Escherichia coli GAU Ile B 1
Escherichia coli GAU Ile B 2
Spinacia oleracea GAU Ile E
Zea mays GAU Ile E
Thermus thermophilus GAU Ile B
Mycoplasma capricolum !UG Gln B
Mycoplasma capricolum GCA Cys B
Phage T4 NUG Gln V
Escherichia coli CUG Gln B
Escherichia coli NUG Gln B
Hordeum vulgare !UG Gln E
Nicotiana rustica JUG Gln E
Spinacia oleracea NGG Pro E
Phaseolus vulgaris UGG Pro E
Mycoplasma capricolum UGG Pro B
Mycoplasma mycoides UGG Pro B
Bacillus subtilis 5GG Pro B
Saccharomyces cerevisiae UGG Pro E
Phage T5 UGG Pro V
Salmonella typhimurium GGG Pro B
Phage T4 NGG Pro V
Salmonella typhimurium VGG Pro B
Salmonella typhimurium CGG Pro B


5 changes
Bovine lens #AA Phe E 1
Bovine lens #AA Phe E 2
Calf liver #AA Phe E
Human placenta #AA Phe E
Rabbit liver #AA Phe E
Xenopus laevis #AA Phe E
Bombyx mori #AA Phe E 1
Drosophila melanogaster #AA Phe E
Bombyx mori #AA Phe E 2
Scenedesmus obliquus GAA Phe E
Mouse e Asc Tum #AA Phe E
Mouse neuroblastom AA Phe E
Mouse liver #AA Phe E
Euglena gracilis #AA Phe E
Hordeum vulgare #AA Phe E
Lupinus luteus #AA Phe E
Pisum sativum #AA Phe E
Wheat germ #AA Phe E
Brassica napus #AA Phe E
Neurospora crassa #AA Phe E
Saccharomyces cerevisiae #AA Phe E 1
Saccharomyces cerevisiae #AA Phe E 2
Bovine liver CCG Arg E 1
Bovine liver CCG Arg E 2
Triticum aestivum CCG Arg E
Triticum aestivum ICG Arg E
Bovine liver IGU Thr E
Saccharomyces cerevisiae ICG Arg E
Mouse leukemia ICG Arg E 1
Mouse leukemia ICG Arg E 2
Bovine liver 3CP Arg E
Chicken BCA Trp E
Chicken asv amv rs BCA Trp V
Bovine liver BCA Trp E
Nicotiana tabacum BCA Trp E 2
Wheat germ BCA Trp E
Saccharomyces cerevisiae BCA Trp E
Avian oncornavirus BAU Met V
Human hela cells BAU Met E
Mouse myeloma BAU Met E
Rabbit liver BAU Met E
Lupinus luteus BAU Met E
Wheat germ BAU Met E
Saccharomyces cerevisiae CAU Met E 2
Loligo bleekeri .UU Lys E 2
Loligo bleekeri UUU Lys E
Loligo bleekeri NUU Lys E 1
Loligo bleekeri NUU Lys E 2
Loligo bleekeri .UU Lys E 1
Loligo bleekeri CUU Lys E 1
Loligo bleekeri CUU Lys E 2
Wheat germ CUU Lys E
Mouse CUN Lys E
Rat liver CUU Lys E 2
Rat liver CUU Lys E 1
Drosophila melanogaster CUU Lys E
Mouse fibrob Sv 4 CUU Lys E
Rabbit liver CUU Lys E 1
Rabbit liver CUU Lys E 2
Rabbit liver 3UU Lys E
Rat liver 3UU Lys E
Drosophila melanogaster UU Lys E
Saccharomyces cerevisiae 1CU Arg E 1
Saccharomyces cerevisiae 1CU Arg E 2
Saccharomyces cerevisiae CUU Lys E
Saccharomyces cerevisiae IAU Ile E
Torulopsis utilis IAU Ile E
Lupinus luteus IAU Ile E
Mouse IAU Ile E
Bombyx mori IAU Ile E
Bovine liver QUU Asn E
Human liver placenta QUU Asn E
Rat liver QUU Asn E
Rat w 256 sarcoma GUU Asn E
Saccharomyces cerevisiae UU Lys E
Lupinus luteus UU Asn E
Human NUG Gln E 1
Human NUG Gln E 2
Human .UG Asn E
Mouse liver JUG Gln E
Bovine liver CUG Gln E
Mouse liver CUG Gln E
Rat liver CUG Gln E
Nicotiana rustica NUG Gln E
Tetrahymena thermophila JUG Gln E
Tetrahymena thermophila CUA Gln E
Tetrahymena thermophila JUA Gln E
Schizosaccharomyces pombe #AA Phe E
Saccharomyces cerevisiae GPA Tyr E
Torulopsis utilis GPA Tyr E
Saccharomyces cerevisiae IGU Thr E 1
Saccharomyces cerevisiae IGU Thr E 2
Saccharomyces cerevisiae GUU Asn E
Haloferax volcanii BAU Met A
Spinacia oleracea AU Ile E
Escherichia coli MAU Met B
Phaseolus vulgaris CAU Met E
Spinacia oleracea CAU Met E
Codium fragile CAU Met E
Scenedesmus obliquus CAU Met E
Bovine liver 9PA Tyr E
Human placenta 9PA Tyr E 2
Human placenta 9PA Tyr E 1
Drosophila melanogaster QPA Tyr E
Wheat germ QPA Tyr E
Nicotiana rustica GPA Tyr E 2
Lupinus albus GPA Tyr E
Lupinus luteus GPA Tyr E
Wheat leaves GPA Tyr E
Nicotiana rustica GPA Tyr E 1
Scenedesmus obliquus GPA Tyr E
Escherichia coli AU Ile B
Bacillus stearothermophilus #AA Phe B
Bacillus subtilis #AA Phe B
Mycoplasma capricolum GAA Phe B
Agmenellum quadruplicatum GAA Phe B
Thermus thermophilus GAA Phe B
Rhodospirillum rubrum GAA Phe B
Spinacia oleracea GAA Phe E
Euglena gracilis GAA Phe E
Phaseolus vulgaris GAA Phe E 1
Phaseolus vulgaris GAA Phe E 2
Oenothera sp GAA Phe E
Escherichia coli GAA Phe B
Saccharomyces cerevisiae GAA Phe E
Saccharomyces cerevisiae GCA Cys E
Escherichia coli QUG His B
Salmonella typhimurium QUG His B
Escherichia coli GCA Cys B
Escherichia coli QUU Asn B
Escherichia coli SUU Lys B
Mycoplasma capricolum UGU Thr B
Mycoplasma mycoides UGU Thr B
Mycoplasma capricolum AGU Thr B
Phage T4 NGU Thr V
Bacillus subtilis 5GU Thr B
Neurospora crassa UGU Thr E
Bacillus subtilis $UU Lys B 1
Bacillus subtilis $UU Lys B 2
Mycoplasma capricolum CUU Lys B
Mycoplasma capricolum !UU Lys B
Azospirillum lipoferum QUU Asn B 1
Azospirillum lipoferum QUU Asn B 2
Mycoplasma capricolum GUU Asn B
Bacillus subtilis AU Ile B
Mycoplasma capricolum AU Ile B
Mycoplasma capricolum GAU Ile B
Mycoplasma mycoides GAU Ile B
Solanum tuberosum .AU Ile E
Solanum tuberosum AU Ile E
Phage T4 .AU Ile V
Codium fragile ICG Arg E
Codium fragile NUU Lys E
Spinacia oleracea NAC Val E
Spinacia oleracea GGU Thr E
Haloferax volcanii NAU Ile A
Halobacterium cutirubrum CGC Ala A
Haloferax volcanii CGC Ala A
Haloferax volcanii GGC Ala A
Haloferax volcanii UGC Ala A
Haloferax volcanii GAU Ile A
Haloferax volcanii CCG Arg A
Haloferax volcanii NCG Arg A
Haloferax volcanii BCA Trp A
Haloferax volcanii MUU Lys A
Haloferax volcanii NUU Lys A
Methanobacterium thermaggregans UU Asn A
Halobacterium cutirubrum GUU Asn A
Haloferax volcanii GUU Asn A
Haloferax volcanii GAA Phe A
Haloferax volcanii GUA Tyr A
Haloferax volcanii CGU Thr A
Thermoplasma acidophilum CAU Met A
Halobacterium cutirubrum GGU Thr A
Haloferax volcanii GGU Thr A

5 changes
Halobacterium cutirubrum GCC Gly A
Haloferax volcanii GCC Gly A 2
Haloferax volcanii GCC Gly A 1
Haloferax volcanii CCC Gly A
Haloferax volcanii NCC Gly A
Haloferax volcanii GGG Pro A
Haloferax volcanii MGG Pro A
Haloferax volcanii UGG Pro A
Halobacterium cutirubrum CUG Gln A
Haloferax volcanii MUG Gln A
Haloferax volcanii MUC Glu A
Haloferax volcanii NUC Glu A
Halobacterium cutirubrum GCG Arg A
Haloferax volcanii GCG Arg A
Halobacterium cutirubrum GUG HIs A
Haloferax volcanii GUG His A
Haloferax volcanii GUC Asp A
Methanobacterium thermaggregans GCC Gly A
Halobacterium cutirubrum CAC Val A 1
Haloferax volcanii CAC Val A
Haloferax volcanii GAC Val A
Halobacterium cutirubrum CAC Val A 2
Halobacterium cutirubrum GAC Val A
Halobacterium cutirubrum CAU Ini A
Haloferax volcanii CAU Ini A
Halococcus morrhua CAU Ini A
Thermoplasma acidophilum CAU Ini A
Haloferax volcanii GCA Cys A
Halobacterium cutirubrum MGA Ser A
Haloferax volcanii MGA Ser A
Haloferax volcanii GCU Ser A
Haloferax volcanii GGA Ser A
Haloferax volcanii CAG Leu A
Haloferax volcanii GAG Leu A
Haloferax volcanii 5AG Leu A
Haloferax volcanii CAA Leu A
Haloferax volcanii UAA Leu A
Mycoplasma capricolum GUA Tyr B
Bacillus subtilis QUA Tyr B 1
Bacillus subtilis QUA Tyr B 2
Bacillus stearothermophilus QUA Tyr B
Escherichia coli QUA Tyr B 1
Escherichia coli QUA Tyr B 2
Phaseolus vulgaris .UA Tyr E
Tetrahymena pyriformis QUA Tyr E
Scenedesmus obliquus GUA Tyr E
Phaseolus vulgaris .AA Leu E 1
Phaseolus vulgaris .AA Leu E 2
Phaseolus vulgaris .AA Leu E 4
Phaseolus vulgaris .AA Leu E 5
Solanum tuberosum .AA Leu E 1
Solanum tuberosum .AA Leu E 2
Cucumis sativus NAA Leu E
Bovine liver °AA Leu E
Cow mammary gland CAG Leu E
Human hela cells .AA Leu E
Rat Morris hepatoma AA Leu E 1
Rat Morris hepatoma AA Leu E 2
Phaseolus vulgaris .AA Leu E 6
Phaseolus vulgaris .AG Leu E
Bovine liver IAG Leu E
Cow mammary gland IAG Leu E
Candida cylindracea IAG Leu E 1
Candida cylindracea IAG Leu E 2
Saccharomyces cerevisiae UAA Leu E
Saccharomyces cerevisiae UAG Leu E
Saccharomyces cerevisiae CAA Leu E
Torulopsis utilis BAA Leu E
Candida cylindracea BAA Leu E
Phaseolus vulgaris .AA Leu E 3
Phaseolus vulgaris .AA Leu E 7
Nicotiana rustica IGA Ser E 1
Nicotiana rustica IGA Ser E 2
Spinacia oleracea IGA Ser E
Nicotiana rustica GCU Ser E
Candida cylindracea GCU Ser E
Nicotiana rustica &GA Ser E
Nicotiana rustica CGA Ser E
Drosophila melanogaster GCU Ser E
Rat liver GCU Ser E
Candida cylindracea CAG Ser E
Rat liver IGA Ser E
Rat Morris hepatoma IGA Ser E
Human UGA Ser E
Lupinus luteus CGA Ser E
Candida cylindracea &GA Ser E
Saccharomyces cerevisiae NGA Ser E
Saccharomyces cerevisiae IGA Ser E 1
Saccharomyces cerevisiae IGA Ser E 2
Candida cylindracea IGA Ser E
Candida cylindracea CGA Ser E
Drosophila melanogaster CGA Ser E
Drosophila melanogaster IGA Ser E
Caenorhabditis elegans IAG Leu E
Glycine max JAA Leu E
Phaseolus vulgaris NAA Leu E
Phage T5 UAG Leu V
Glycine max UA7 Leu E
Phaseolus vulgaris UA7 Leu E
Spinacia oleracea UA7 Leu E
Glycine max BAA Leu E
Phaseolus vulgaris BAA Leu E
Neurospora crassa NAA Leu E
Neurospora crassa UAG Leu E
Saccharomyces cerevisiae !AA Leu E
Rhodospirillum rubrum CAA Leu B
Escherichia coli CAG Leu B
Salmonella typhimurium CAG Leu B
Escherichia coli GAG Leu B
Bacillus subtilis CAG Leu B
Mycoplasma capricolum UAG Leu B
Anacystis nidulans CAG Leu B
Anacystis nidulans CAA Leu B
Escherichia coli HAA Leu B
Phage T4 NAA Leu V
Mycoplasma capricolum AA Leu B
Mycoplasma capricolum BAA Leu B
Bacillus stearothermophilus BAA Leu B
Mycoplasma capricolum UGA Ser B
Mycoplasma mycoides UGA Ser B
Bacillus subtilis 5GA Ser B
Bacillus subtilis GCU Ser B
Mycoplasma capricolum GCU Ser B
Escherichia coli CGA Ser B
Escherichia coli GGA Ser B 1
Escherichia coli GGA Ser B 2
Escherichia coli GCU Ser B
Escherichia coli VGA Ser B
Phage T4 NGA Ser V
Bacillus subtilis GGA Ser B
Saccharomyces cerevisiae GCU Ser E
Saccharomyces cerevisiae UGA Ser E 1
Saccharomyces cerevisiae UGA Ser E 2
Saccharomyces cerevisiae GUA Tyr E
Neurospora crassa GUA Tyr E
Bovine liver 1CA Sec E
Human hela cells NCA Sec E
Mouse liver NCA Sec E