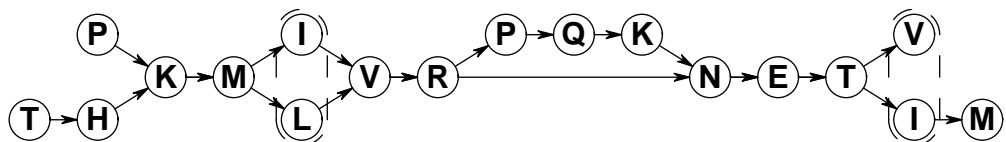
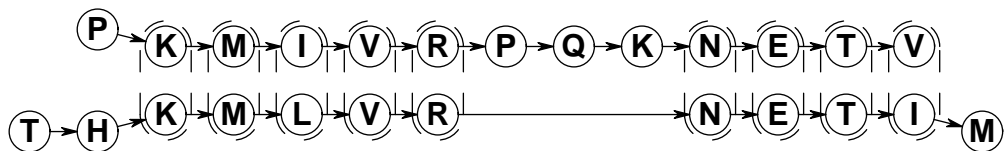
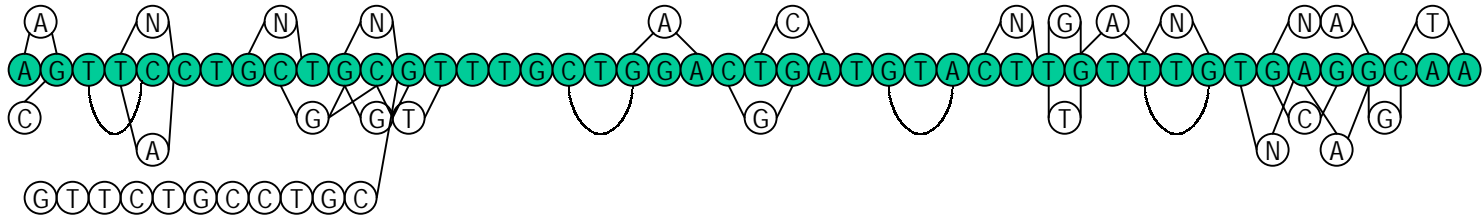


. . P K M I V R P Q K N E T V .
 T H . K M L V R . . . N E T I M



A

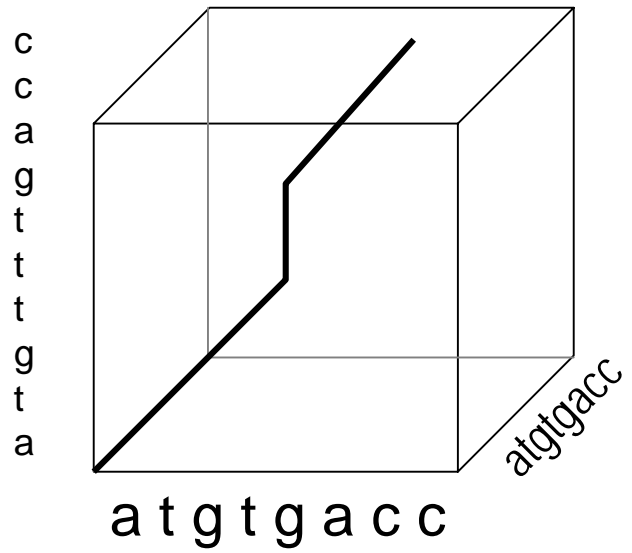


B

CONSENS1TGTACNT.GTTTGTGAGG.CTA
CONSENS0	A.GTTCCTGCTGC.....GTTTGTGCTGGACTGATGTACTT.GTTTGTGAGG.CAA
Hs#S663801	A.GTTCCTGCTGC.....GTTTGTGCTGGACTTATGTACTT.GTTTGTGAGG.CAA
Hs#S337687	AGTTCCTGCTGC.....GTTTGTGCTGGACTGATGTACTTGGTTTGTGNAGGCAA
Hs#S629177	A.GTTCCTGCTGC.....GTTTGTGCTGGACTGATGTACTT.GTTTGTNAGG.CAA
Hs#S672957	A.GTTCCTGCTGC.....GTTTGTCT.....
Hs#S672182	A.GTTCCTGCTGC.....GTTTGTGCTGGACTGATGTACTT.GTTT.....
Hs#S674099	A.GTTCCTGCTGC.....GTTTGTGCTGGACTGATGTACTT.GTTTGTGAGG.CAA
Hs#S196113	A.GTTNCTGNTGN.....GTTTGTGCTGGACTGATGTACTT.GTTTGTGAGG.CAA
Hs#S994400GTACNT.GTTTGTGAGG.CTA
Hs#S550772	A.GTTCCTGCTGC.....GTTTGTGCTGGACTGATGTACTT.GTTTGTGAGG.CAA
Hs#S80460	A.GTTCCTGCTGC.....GTTTGTGCTGGACTGATGTACTT.GTTTGTGAGG.CAA
Hs#S39701	A.GTTCCTGCTGC.....GTTTGTGCTGGACTGATGTACTT.GTTTGTGAGG.CAA
Hs#S1988018	A.GTTCCTGCTGC.....TTTGTGCTGGACTGATGTACTT.GTTTGTGAGG.CAA
Hs#S341915	A.GTTCCTGCTGC.....GTTTGTGCTGGACTGATGTACTT.GTTTGTGAGG.CAA
Hs#S1794113	A.GTTCCTGCTGC.....GCTTGTGCTGGACTGATGTACTT.GTTTGTGAGG.CAA
Hs#S4698	A.GTTCCTGCTGC.....GTTTGTGCTGGACTGATGTACTT.GTTTGTGCGG.CAA
Hs#S813765	A.GT.CCTGCG.C.....GTTTGTGCGGACGGATGTACTT.GTT.GTGAGG.CAA
Hs#S1184845G.CAA
Hs#S1577463GG.CAA
Hs#S914987CTGATGTACTT.GTT.GTGAGGGCAA
Hs#S1985364	A.GTTCCTGCTGC.....GTTTGTGCTGGACTGATGTACTT.GTTTGTGAGG.CAA
Hs#S1465644GTTTGTGCTGGACTGATGTACTT.GTTAGT.AAG.CAA
Hs#S1850471	C.GTTACTGCGG.....GTTTGTGCTGGACTCATG.ACTTGTNGT.AGG.CAA

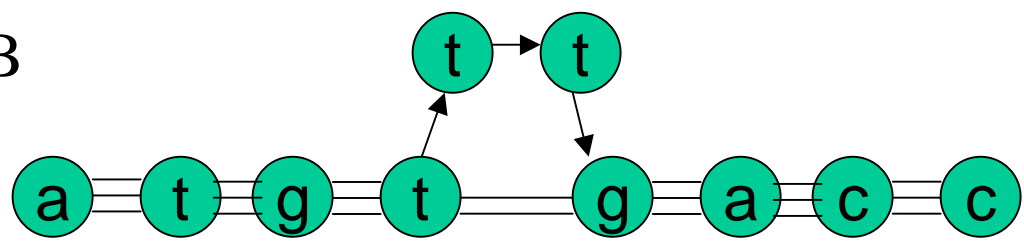
High-dimensional MSA

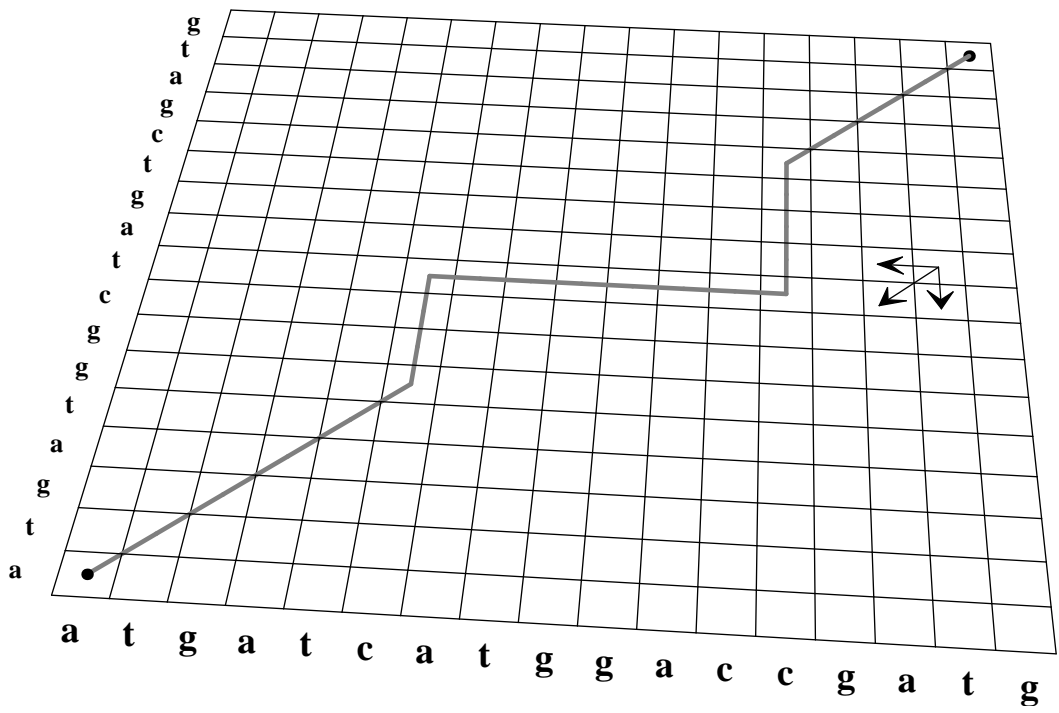
A

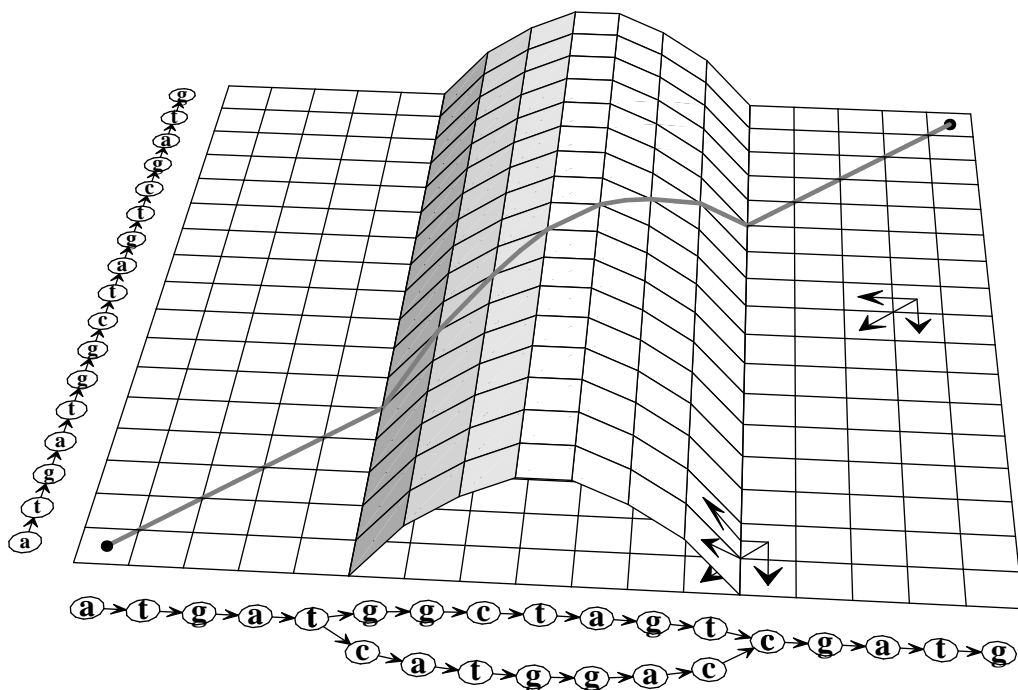


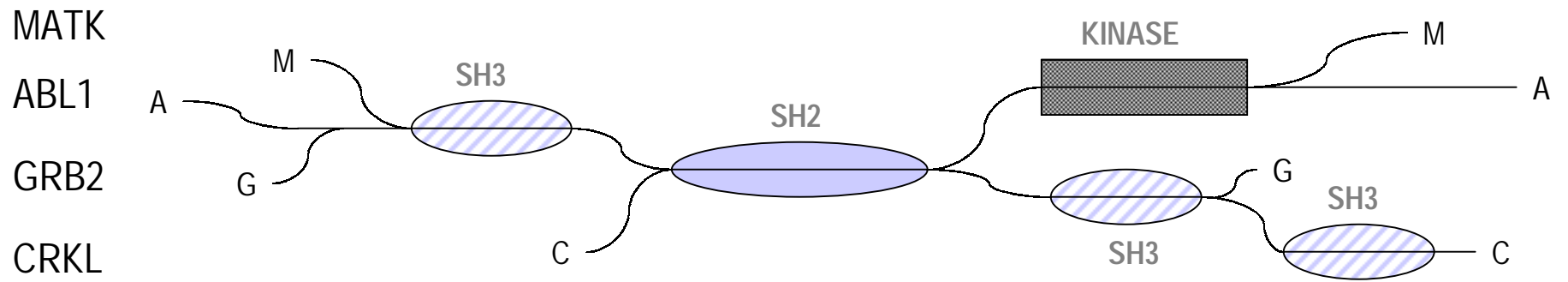
Partial-Order Alignment

B









abl mleiclkvlgckskkglssssscyleealqrpvasdfepqglseaarwnskenllagpse

matkmagrgslvswrafhgcdsaeelprvsprflrawhpppv
 abl ndpnlf...**VALYDFvASGDN**.....
 grb2**meaIAkYDFkATADD**.....

matk armptrrwapgtqcitkcehtrpkpg**ELAFRKG**DVVtIL.EaCEnK**SWYRvKhhtSGQEG**
 ablt**LSitKGEkLRVL**gynhn.ge**WcEAQtk.NGQ.G**
 grb2**ELSFKRGDILKVL**neEcd.Q**NWYKAEL.NGKDG**

matk LLaAgaLrer.....EALsadPklsmp**WFGKISgQEAvQQLQ**.ppED**GFLVRESAR**
 abl **WVPSNYItpv**.....NSLEKHS.....**WYHG**PVSRNa**AEyLLS**sgin.**GSFLVRESSES**
 grb2 **FIPkNYI**.....eMKp**HP**.....**WFFG**KIPRa**KA**EEMLSk**QRHDGAF**LIRESES
 crklmssar**fDSsDRsA**.....**WYMG**PVSR**QEAQ**tRL**QgQRH**.**GMFLVRDSST**

matk **hPGDYVLCvSFG**r**DViHYRV**.lhr**DGH**LtIdEa**VfFc**NLmDM**VEHY**Skdkg**aIcT**kL**VrP**
 abl **SPG**qrSISLR**YegRVyHYRINT**as**DGKLYV**ssEs**RFNTLaELVhHHST**VadgLi**TTLhyP**
 grb2 **APGDFSLSVKFG**ND**VqHF**KVlrdga**GK.YFlwVKFNSLnELVDYHRS**.....**TSV**...
 crkl **cPGDYVLSVSenSRV**s**HYiINS**lpNr**FkI**gD**Qe.FDHL**paL**LEFYK**.I**h**yl**dtTTL**I**eP**

matk ..KRKHgTksaeelarag**WllnlqhlTL**gag**IGeGEFG**a**VlQGeY**..lgqk**VAVKNIKc**
 abl **APKRNKPTVYgVS**.PNydk**WemertdITM**khk**LGGQYGeVyEGv**Wkyslt**VAVKTLKe**
 grb2 ..s**RNQ.qIF**.Lr..**D**.....
 crkl **APRY**psPpMgs**V**SaPN.....

matk **DVt.aQaFLdEtAVM**t**KMQH**e**NLVRLLGV**il**HQg.LYIVmEhV**Sk**GNLVNFLR**trg**RalV**
 abl **D**TmevEe**FLkEaAVM**k**EIKHpNLVQLLGV**ctREpp**FYI**It**EfMTyGNL**LD**YL**Recn**RqeV**

matk **N**taq**LLqFS**l**HVA**eg**MEYLE**s**KKL**V**H**R**D**L**AARNiLVsED**l**VaKVSD**F**LAK**..aErkg**l**
 abl **N**avv**LLyMATQ**ISSa**MEYLE**k**KNF**I**H**R**D**L**AARNcLVgEN**h**LvKVAD**F**L**S**R**lmtg**D**tyta

matk **dS.SRLPVKWT**AP**EAL**k**HgKFT**s**KSDVW**S**FGVLLWE**Vf**SYGrAPYP**kMs**LkEVsEaVEK****g**
 abl **hAgAKFP**IK**WT**AP**ESLaYnKFSiKSDVW**A**FGVLLWEIaTYGmSPYP**gId**LSQVYeLEK****d**

matk **YRMEpPEGCP**gp**VHvLMsSCW**Eae**PArRPpF**.....
 abl **YRMErPEGCP**ek**VYeLMrACWQwnPSdRPsF**aehgafetmfqessisdevekelgkqgv

abl rgavstllqapelptktrtsrraaehrdttvpemphskggesdpldhepavspllprk

abl ergppegglnderllpkdkktnlfsalikkkktaptppkrsssremdgqperrgage

abl eegrdisngalaftpldtadpakspkpsngagvpngalresggsgfrsphlwksstlts

abl srlatgeeeggssskrflrscsascvphgakdtewrsvtlprdlqstgrqfdsstfggh

abl ksekalprkragenrsdqvtrgtvtppprlvkkneeaadevfkdimesppgssppnltp

abl kplrrqvtvapasglphkeeaekgsalgtpaaaepvtptskagsgapggtskgsppaesrv

abl rrrkhssespprdkgklsrlkpappppppaasagkaggkpsqspsqeaageavlgaktkat

abl slvdavnsdaakpsqpgglkpvlpatpkpqsakpsgtpisapvpstlpsassalagd

abl qpsstafiplistrvslrktrqpperiasgaitkgvldstealclairnseqmasha

abl vleagknlytfcvsyvdsiqqmrnkfafreainklennlrelqicpatagsgpaatqdfs

abl kllssvkeisdivqr.....
 grb2IeqvpqQpt**YVQALFDFdPqeDgE.LgFRRGDFIhVMDNsDpNWW**
 crklLptaedNle**YVRTLYDF**.PgnDa**EdLpFKKGEILvIIEKpEeQWW**

grb2 kgach.**GQTGMFPrnYVtpVnRNv**.....
 crkl sarnkd**GRVGMIPvpYVekLvRS**.sphgkhgnrnsnsygipepahayaqpqtttpav

crkl gspgaaitplpstqngpvpfakaiqkrvpcaydktalalevgdivkvtrmningqwegevn

matk**rklaeklare**lrsagapasvsgqdadgstsprsqep
 crkl grkgflpfthvkifdpqnpdene.....

