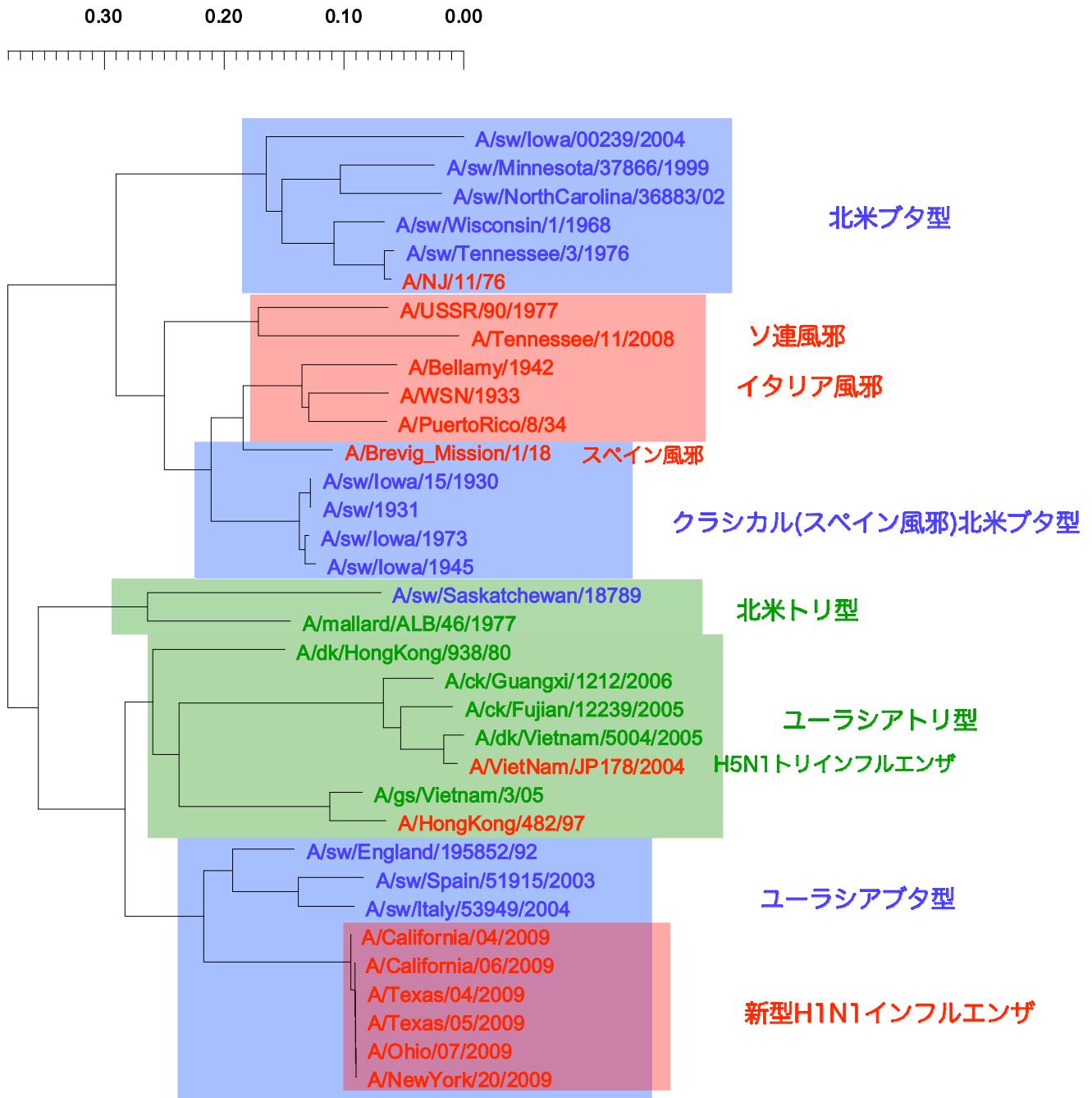


## N1NA遺伝子による系統樹（同義置換）



NAとM遺伝子は、ユーラシア型。

ユーラシア型M2遺伝子は、アマンタジン、リマンタジン耐性。

# N1NA遺伝子のアライメント

ストークスの長さ  
NA活性が変わる。

[GENETYX-MAC: Multiple Alignment]  
Date : 2009. 5.11

A/California/04/2009	1	MNPQKIIITIGSVCMTIGMANLILQIGNIISIWIHSIQLGNQNIETCNQSVITYENNTWVNTYVNIISNTNFAAGQSVVSKLAGNSSLCPVSGWAIY	100
A/USSR/90/1977	1	.....I..A..IIS.....V....T.S..HTGI...RI...S.....VV..KDTT.MT.....IR.....	100
A/Tennessee/11/2008	1	.....ISIA..IIS.M.....A....T.S..NTGI...RI...S...H...N...VV..EDKT..T.....SI.....	100
A/Brevig_Mission/1/18	1	.....I..VV.IIS.....V....T...HP...I.....VV...DAT..I.T.....I.....	100
A/swine/Iowa/15/1930	1	..T.....I.LIV.IIS.....TRD..HP...I.....A.IV...DAT.MI.....I.R....	100
A/NJ/11/76	1	..T..R....TI.LIV.IIS.L.....LL.M....T.EKSHPKV.....I...G.TPII.....I.....	100
A/WSN/1933	1	.....I..VV.IIS.....T....HTGI...GS...KVVAGQ-----DST..I.T.....IR...H	84
A/mallard/ALB/46/1977	1	.....I..A..IIS.M.....V....T...HP...I.....I.....LI.E.A.A..T.....I.....	100
A/PuertoRico/8/34	1	.....I.LVV.LIS.....T.S..HTGI...NI...K.S...KD.TS-----I.T.....IR....	85
A/VietNam/JP178/2004	1	.....I..VT.IVS.M..V..M....V....HT...H.A.PISNTN-----L.TEKA.A.....IN...V.	80
		*** **	
A/California/04/2009	101	SKDNSVRIGSKGDVFIREFPFCISCPLECRFTFLTQGLALLNDKHSNGTIKDRSPYRTLMSCPGIVPSPYNSRFESVAVASACHDGINWLTIGISGPDN	200
A/USSR/90/1977	101	.....I.....H.....V.....A.....A.....Y..MGC.....D	200
A/Tennessee/11/2008	101	T...I.....H.....V.....A.....L.A.....K.....MG.....	200
A/Brevig_Mission/1/18	101	..GI.....H.....V.....V.A.....MG.....	200
A/swine/Iowa/15/1930	101	.....I.....H.....V.....A.....MS.....	200
A/NJ/11/76	101	.....I.M.....H.....R...V.....A.....MG.....	200
A/WSN/1933	85	..GI.....H.....R.F...A...V.A.....VG.....D	184
A/mallard/ALB/46/1977	101	..GI.....H.....V.....A.....G.....	200
A/PuertoRico/8/34	86	.....I.....H.....S.V...A...V.A.....MG.....	185
A/VietNam/JP178/2004	81	.....I.....H.....V...H...V.A.....TS.....	180
		***** ** ***** ***** ** ***** * ***** ***** ** *****	
A/California/04/2009	201	GAVAVLKYNIGIITDIKSWRNINLRTQSEACVNGSCFTVMTDGPVNGQASYKIFRIEKGKIVKSVEMNAPNYHYECCSPYDSEITCVCRDNWHGSN	300
A/USSR/90/1977	201	.....E.....KQ.....V.....I.....D.P...R..K....T..I.LD..S.....TGTVM.....	300
A/Tennessee/11/2008	201	.....G...KKQ.....V.M...I.....KA...K...VT..I.L..FY...TGIVM.....	300
A/Brevig_Mission/1/18	201	.....K.....I.....L.K...VT..I.L.....TGKVM.....	300
A/swine/Iowa/15/1930	201	.....K.....I.....K...R.I..I.L.....T.KVM.....	300
A/NJ/11/76	201	.....K.....V.I...I.....L.KM...IR..I.LD.....TGKVV...A..	300
A/WSN/1933	185	.....R..E.....K.....T.....D.L...K...VT..I.L..S.....TGKVM.....	284
A/mallard/ALB/46/1977	201	.....I.....I.....K...V...L..H...AG..M.....	300
A/PuertoRico/8/34	186	.....E...KK.....I.....D.L...K...VT..I.L..S.....TGKVM.....	285
A/VietNam/JP178/2004	181	.....H...KM...V...AG..LD.....AG.....	280
		***** ** ***** ***** ** ***** * ***** ***** ** *****	
A/California/04/2009	301	RPWVSFNQNLLEYQIGYICSGIFGDNPRPNDKTGSCGVPSSNGANGVKGFSEFKYNGVWIGRTKSISRNGFEMWDPNGWTGTDNMFSIKQDIVGINEWS	400
A/USSR/90/1977	301	.....D.....V.....K.G.K.R.D..NVD..D...YR...G...N...K.....DP.S..LV...AMTD..	400
A/Tennessee/11/2008	301	.....D.....V.....E.GE...N.TVD...Y...NRL.K.....N..SD..V...V.A.TD..	400
A/Brevig_Mission/1/18	301	.....D..D.....V...G...S...I...R.D...T..S...E..SS.VR...A.TD..	400
A/swine/Iowa/15/1930	301	.....D..D.....V...S.G...R...S...E..SS.V...A.TD..	400
A/NJ/11/76	301	.....D..D.....V...S.G.K.N...L...R...S...E..SS.M...IALTD..	400
A/WSN/1933	285	.....D..D.K...V...K.G...AD...Y...D..H...E..SR..MR..V.A.TNR..	384
A/mallard/ALB/46/1977	301	.....V...G...Y...T..S...E..SS.V...A.TD..	400
A/PuertoRico/8/34	286	.....D..D.....V...E.G...YVD...YR...H..H...E..SK..VR..V.AMTD..	385
A/VietNam/JP178/2004	281	.....V...G...Y...TN..S...E..SS.V...A.TD..	380
		***** ** ***** ***** ** ***** * ***** ***** ** *****	
A/California/04/2009	401	GYSGSFVQHPPELTGLDCIRPCFWVELIRGRPKE-NTIWTSGSSISFCGVNSDTVGWSWPDGAELPFTIDK-----	469
A/USSR/90/1977	401	.....R.....M.....R.KT.....N...D...L.....	470
A/Tennessee/11/2008	401	.....V..L.R.NT.....AN.....	470
A/Brevig_Mission/1/18	401	.....M.....Q.....S.....	469
A/swine/Iowa/15/1930	401	.....M.....Q.....S.....	469
A/NJ/11/76	401	.....MN.....Q...-S.....G.AS...D.....	469
A/WSN/1933	385	.....M.....L.E.-DA...I...D.....FVQKTPCFY	462
A/mallard/ALB/46/1977	401	.....M.....-.....FVQKTPCFY	478
A/PuertoRico/8/34	386	.....M.....K...A...D...S.....	454
A/VietNam/JP178/2004	381	.....S.....S.....	449
		***** ***** * ***** ** ***** * ***** ***** ** *****	

Yに変異でタミフル耐性

Plasminogenに関連する遺伝子配列

C末のリジンと結合

糖鎖がつくとPlasminogenとの結合弱まる。