

## Supplementary Tables

**Table S1** Primers used for Sanger sequencing of the NOR-1997 strain.

Primer name	*Nucleotide sequence (5'-3')
Lambda1 UTR_Fw	GCCGCTCGAGTCTAGAGATAATGTTTGT <b>TTT</b> GCCAT
Lambda1 UTR_Rw	AAACGGG <b>CCCT</b> CTAGAGATGAAGTTGTCATGTTTGT
Lambda2 UTR_Fw	GCCGCTCGAGTCTAGAGATAATTGTAACGACGAAAT
Lambda2 UTR_Rw	AAACGGG <b>CCCT</b> CTAGAGATGAAGAAGGAACGGCCTA
Lambda3 UTR_Fw	GCCGCTCGAGTCTAGAGATAATAATGGAGAAACCTA
Lambda3 UTR_Rw	AAACGGG <b>CCCT</b> CTAGAGATGAAGAAGGATCGGCCCA
Mu2 UTR_Fw	GCCGCTCGAGTCTAGAGATAATAACTC <b>TTT</b> GCCAC
Mu2 UTR_Rw	AAACGGG <b>CCCT</b> CTAGAGATGAAAATCTCTTAAGCC
Mu1 UTR_Fw	GCCGCTCGAGTCTAGAGATAAATTTGTTTAACAGGC
Mu1 UTR_Rw	AAACGGG <b>CCCT</b> CTAGAGATGAAGATTTGTCGTTCCG
MuNS UTR_Fw	GCCGCTCGAGTCTAGAGATAAAGCTTACGACACGTG
MuNS UTR_Rw	AAACGGG <b>CCCT</b> CTAGAGATGAGGAGGGGAGCTCACA
Sigma1 UTR_Fw	GCCGCTCGAGTCTAGAGATAAAGATCTTAACCGCAG
Sigma1 UTR_Rw	AAACGGG <b>CCCT</b> CTAGAGATGAAAAACAGGCTTACCG
Sigma2 UTR_Fw	GCCGCTCGAGTCTAGAGATAAATTTGTTGGTGACGA
Sigma2 UTR_Rw	AAACGGG <b>CCCT</b> CTAGAGATGAAGAGGCGTGCTGACT
SigmaNS UTR_Fw	GCCGCTCGAGTCTAGAGATAATTTTGATTGCATACA
SigmaNS UTR_Rw	AAACGGG <b>CCCT</b> CTAGAGATGAAGAGATGTTTCGATTG
Sigma3 UTR_Fw	GCCGCTCGAGTCTAGAGATAAAGACTTCTGTACGTG
Sigma3 UTR_Rw	AAACGGG <b>CCCT</b> CTAGAGATGAATAAGACCTCCTTCC

\*PRV-1 sequence specific regions are shown in bold.

**Table S2.** Number of reads of PRV-1 segments from the Illumina HiSeq4000 run.

Segment	L1	L2	L3	M1	M2	M3	S1	S2	S3	S4
NOR-2015/SSK	3634	4460	2938	912	1016	1142	214	277	149	188
NOR-2015/MS	1047	5106	793	474	1106	505	837	690	924	933
FO/1978/15	207	270	163	120	87	98	128	52	76	40
FO/41/16	261	220	225	111	76	113	90	102	100	82
NOR-1988	211562	311365	203953	84962	72206	88916	55023	63314	72555	65535

**Table S3.** Amino acid differences between HSMI- and non-HSMI associated isolates compared to NOR-1988.

Seg.	*Non-HSMI isolates			HSMI Isolates							
	NOR-1988	FO/1978/15	All NAPC isolates	NOR-1997	NOR-2005/T	NOR-050607	NOR-2015/SSK	NOR-2015/MS	NOR-V3621	GP-2010	CGA-28005
L1	K <sub>16</sub>									E <sub>16</sub>	
	A <sub>30</sub>							T <sub>30</sub>			
	S <sub>60</sub>										P <sub>60</sub>
	A <sub>63</sub>	V <sub>63</sub>	V <sub>63</sub>	V <sub>63</sub>	V <sub>63</sub>	V <sub>63</sub>	V <sub>63</sub>	V <sub>63</sub>	V <sub>63</sub>	V <sub>63</sub>	V <sub>63</sub>
	I <sub>179</sub>			V <sub>179</sub>	V <sub>179</sub>			V <sub>179</sub>			
	V <sub>184</sub>			A <sub>184</sub>	A <sub>184</sub>			A <sub>184</sub>			
	T <sub>200</sub>							S <sub>200</sub>			
	D <sub>243</sub>										G <sub>243</sub>
	E <sub>343</sub>			G <sub>343</sub>							
	D <sub>347</sub>			E <sub>347</sub>							
	N <sub>372</sub>			D <sub>372</sub>				D <sub>372</sub>			
	V <sub>490</sub>			I <sub>490</sub>							
	I <sub>601</sub>										T <sub>601</sub>
	N <sub>758</sub>			S <sub>758</sub>	S <sub>758</sub>						
	D <sub>937</sub>			A <sub>937</sub>				A <sub>937</sub>			
	V <sub>962</sub>			I <sub>962</sub>				I <sub>962</sub>			
	N <sub>996</sub>			S <sub>996</sub>							
	R <sub>1065</sub>										W <sub>1065</sub>



	<b>S</b> <sub>39</sub>	P <sub>39</sub>	P <sub>39</sub>	P <sub>39</sub>	P <sub>39</sub>	P <sub>39</sub>	P <sub>39</sub>	P <sub>39</sub>	P <sub>39</sub>	P <sub>39</sub>	P <sub>39</sub>
	<b>T</b> <sub>69</sub>			V <sub>69</sub>	V <sub>69</sub>	V <sub>69</sub>	V <sub>69</sub>	V <sub>69</sub>	V <sub>69</sub>	V <sub>69</sub>	V <sub>69</sub>
	<b>E</b> <sub>78</sub>			D <sub>78</sub>	D <sub>78</sub>	D <sub>78</sub>	D <sub>78</sub>	D <sub>78</sub>	D <sub>78</sub>	D <sub>78</sub>	D <sub>78</sub>
	<b>A</b> <sub>85</sub>			T <sub>85</sub>	T <sub>85</sub>	T <sub>85</sub>	T <sub>85</sub>	T <sub>85</sub>	T <sub>85</sub>	T <sub>85</sub>	T <sub>85</sub>
	<b>T</b> <sub>117</sub>			N <sub>117</sub>	N <sub>117</sub>	N <sub>117</sub>	N <sub>117</sub>	N <sub>117</sub>	N <sub>117</sub>	N <sub>117</sub>	N <sub>117</sub>
	<b>I</b> <sub>137</sub>			V <sub>137</sub>	V <sub>137</sub>	V <sub>137</sub>	V <sub>137</sub>	V <sub>137</sub>	V <sub>137</sub>	V <sub>137</sub>	V <sub>137</sub>
	<b>A</b> <sub>156</sub>			T <sub>156</sub>	T <sub>156</sub>	T <sub>156</sub>	T <sub>156</sub>	T <sub>156</sub>	T <sub>156</sub>	T <sub>156</sub>	T <sub>156</sub>
	<b>S</b> <sub>157</sub>			A <sub>157</sub>	A <sub>157</sub>	A <sub>157</sub>	A <sub>157</sub>	A <sub>157</sub>	A <sub>157</sub>	A <sub>157</sub>	A <sub>157</sub>
	<b>G</b> <sub>164</sub>								G <sub>164</sub>		
	<b>K</b> <sub>174</sub>			E <sub>174</sub>	E <sub>174</sub>	E <sub>174</sub>	E <sub>174</sub>	E <sub>174</sub>	E <sub>174</sub>	E <sub>174</sub>	E <sub>174</sub>
	<b>V</b> <sub>206</sub>			A <sub>206</sub>	A <sub>206</sub>	A <sub>206</sub>	A <sub>206</sub>	A <sub>206</sub>	A <sub>206</sub>	A <sub>206</sub>	A <sub>206</sub>
	<b>I</b> <sub>218</sub>			V <sub>218</sub>	V <sub>218</sub>	V <sub>218</sub>	V <sub>218</sub>	V <sub>218</sub>	V <sub>218</sub>	V <sub>218</sub>	V <sub>218</sub>
<b>S1</b> (p13)	<b>V</b> <sub>16</sub>			A <sub>16</sub>	A <sub>16</sub>	A <sub>16</sub>	A <sub>16</sub>	A <sub>16</sub>	A <sub>16</sub>	A <sub>16</sub>	A <sub>16</sub>
	<b>T</b> <sub>39</sub>			M <sub>39</sub>	M <sub>39</sub>	M <sub>39</sub>	M <sub>39</sub>	M <sub>39</sub>	M <sub>39</sub>	M <sub>39</sub>	M <sub>39</sub>
	<b>M</b> <sub>50</sub>			T <sub>50</sub>	T <sub>50</sub>	T <sub>50</sub>	T <sub>50</sub>	T <sub>50</sub>	T <sub>50</sub>	T <sub>50</sub>	T <sub>50</sub>
	<b>K</b> <sub>52</sub>			I <sub>52</sub>	I <sub>52</sub>	I <sub>52</sub>	I <sub>52</sub>	I <sub>52</sub>	I <sub>52</sub>	I <sub>52</sub>	I <sub>52</sub>
	<b>A</b> <sub>74</sub>			V <sub>74</sub>	V <sub>74</sub>	V <sub>74</sub>	V <sub>74</sub>	V <sub>74</sub>	V <sub>74</sub>	V <sub>74</sub>	V <sub>74</sub>
	<b>R</b> <sub>76</sub>	Q <sub>76</sub>		Q <sub>76</sub>	Q <sub>76</sub>	Q <sub>76</sub>	Q <sub>76</sub>	Q <sub>76</sub>	Q <sub>76</sub>	Q <sub>76</sub>	Q <sub>76</sub>
	<b>Q</b> <sub>81</sub>			R <sub>81</sub>	R <sub>81</sub>	R <sub>81</sub>	R <sub>81</sub>	R <sub>81</sub>	R <sub>81</sub>	R <sub>81</sub>	R <sub>81</sub>
	<b>L</b> <sub>91</sub>			M <sub>91</sub>	M <sub>91</sub>	M <sub>91</sub>	M <sub>91</sub>	M <sub>91</sub>	M <sub>91</sub>	M <sub>91</sub>	M <sub>91</sub>
<b>S2</b>			**								
<b>S3</b>	<b>I</b> <sub>336</sub>		**								V <sub>336</sub>
<b>S4</b>	<b>A</b> <sub>75</sub>										V <sub>75</sub>
	<b>V</b> <sub>107</sub>							A <sub>107</sub>			
	<b>D</b> <sub>252</sub>					N <sub>252</sub>	N <sub>252</sub>		N <sub>252</sub>		N <sub>252</sub>

\*Amino acid sites consistently found in HSMI-associated isolates not present in NAPC, Faroe Island isolates and NOR-1988 are considered unique.

\*\*The overall majority of NAPC sequences were identical to the NOR-1988 strain, but a few displayed minor differences.

**Table S4.** SNPs in M2 and S1 segment coding sequence of Norwegian HSMI strains compared to other NAPC and non-HSMI (NOR-1988, Faroes isolates).

S4. A

1. T80- <b>C80</b>	2. C189- <b>T189</b>	3. T203- <b>C203</b> (only in CGA280-05)	4. C212- <b>T212</b>	5. A239- <b>G239</b>	6. G275- <b>A275</b>	7. A281- <b>G281</b>
8. C299- <b>T299</b>	9. G302- <b>A302</b>	10. A336- <b>G336</b> (only in CGA280-05)	11. T362- <b>C362</b>	12. C404- <b>G404</b>	13. A410- <b>G410</b>	14. G419- <b>A419</b>
15. T464- <b>C464</b>	16. G550-C550	17. T581- <b>C581</b> (In Salmo/GP-2010/NOR, NOR-2015/MS, CGA280-05)	18. C782- <b>T782</b>	19. G783- <b>T783</b>	20. T806- <b>C806</b>	21. T869- <b>C869</b>
22. C896- <b>T896</b>	23. C902- <b>T902</b>	24. C905- <b>T905</b>	25. G917- <b>A917</b>	26. T942- <b>C942</b> (NOR-2015/MS, NOR-2015/SSK)	27. A944- <b>G944</b>	28. G950- <b>A950</b>
29. A960- <b>C960</b>	30. C983- <b>T983</b>	31. T1004- <b>A1004</b>	32. C1046- <b>T1046</b>	33. T1049- <b>C1049</b>	34. G1070- <b>A1070</b>	35. C1098- <b>T1098</b>
36. C1100- <b>A1100</b>	37. A1107- <b>G1107</b>	38. A1118- <b>G1118</b> (only in NOR-2015/MS)	39. T1142- <b>C1142</b>	40. G1199- <b>A1199</b>	41. A1214- <b>G1214</b>	42. A1217- <b>G1217</b>
43. G1230- <b>A1230</b> (only in NOR-2015/MS)	44. G1247- <b>A1247</b>	45. A1268- <b>T1268</b>	46. A1402- <b>G1402</b> (only in NOR-2015/MS)	47. A1458- <b>G1458</b> (only in NOR-2015/MS)	48. C1550- <b>T1550</b>	49. G1583- <b>A1583</b>
50. C1640- <b>T1640</b>	51. A1694- <b>G1694</b>	52. C1751- <b>T1751</b>	53. A1763- <b>G1763</b>	54. A1775- <b>G1775</b>	55. G1847- <b>A1847</b>	56. A1880- <b>G1880</b>
57. A1901- <b>G1901</b>	58. A1940- <b>G1940</b>	59. G1994- <b>A1994</b>	60. T2000- <b>C2000</b> ((In NOR-1997, NOR-050607, NOR2012-V3621, NOR-2015/MS, NOR-			

			2015/SSK, CGA280-05)			
--	--	--	-------------------------	--	--	--

S4. B S1 segment

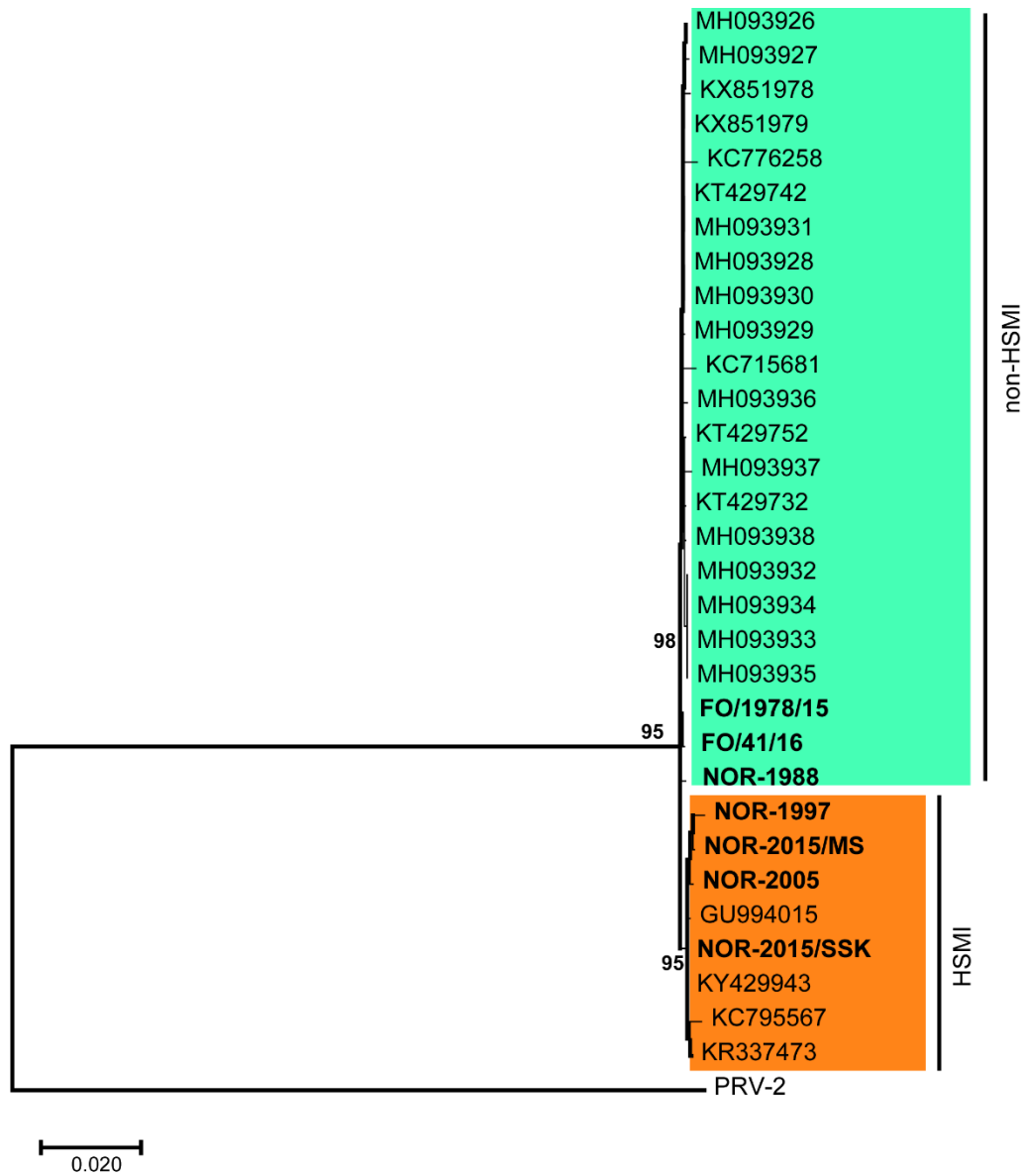
1. A68- <b>G68</b> (only in CGA280-05)	2. C75- <b>T75</b> (only in CGA280- 05)	3. T126- <b>C126</b>	4. C195- <b>T195</b>	5. A205- <b>G205</b>	6. C206- <b>T206</b>	7. C228- <b>T228</b>
8. A234- <b>T234</b>	9. G253- <b>A253</b>	10. C300- <b>T300</b>	11. A321- <b>G321</b>	12. C350- <b>A350</b>	13. A409- <b>G409</b>	14. G466- <b>A466</b>
15. T469- <b>G469</b>	16. G491- <b>A491</b> (NOR- 050607)	17. T492- <b>C492</b>	18. G504- <b>T504</b>	19. C507- <b>T507</b>	20. A520- <b>G520</b>	21. G564- <b>A564</b>
22. T617- <b>C617</b>	23. A652- <b>G652</b>	24. A705- <b>G705</b>	25. T735- <b>C735</b>	26. A747- <b>G747</b>	27. A789- <b>G789</b>	28. C879- <b>T879</b>
29. C900- <b>T900</b>	30. T957- <b>C957</b>					

**The non-HSMI (Faroese and NOR-1988) and other NAPC isolates nucleotides are indicated in black color with the position of nt starting from coding sequence**

MH093978.1, MH093979.1, MH093980.1, MH093981.1, MH093982.1, MH093983.1, MH093984.1, MH093985.1, MH093986.1, MH093987.1, MH093988.1, MH093989.1, MH093990.1, MK675888.1 FO/41/16 MK675878.1 FO/1978/15, MK675868.1 NOR-1988, KX851971.1# KC473454.1, KT429736.1\* , KX851970.1# KT429746.1, KC473453.1, KT429756.1\*

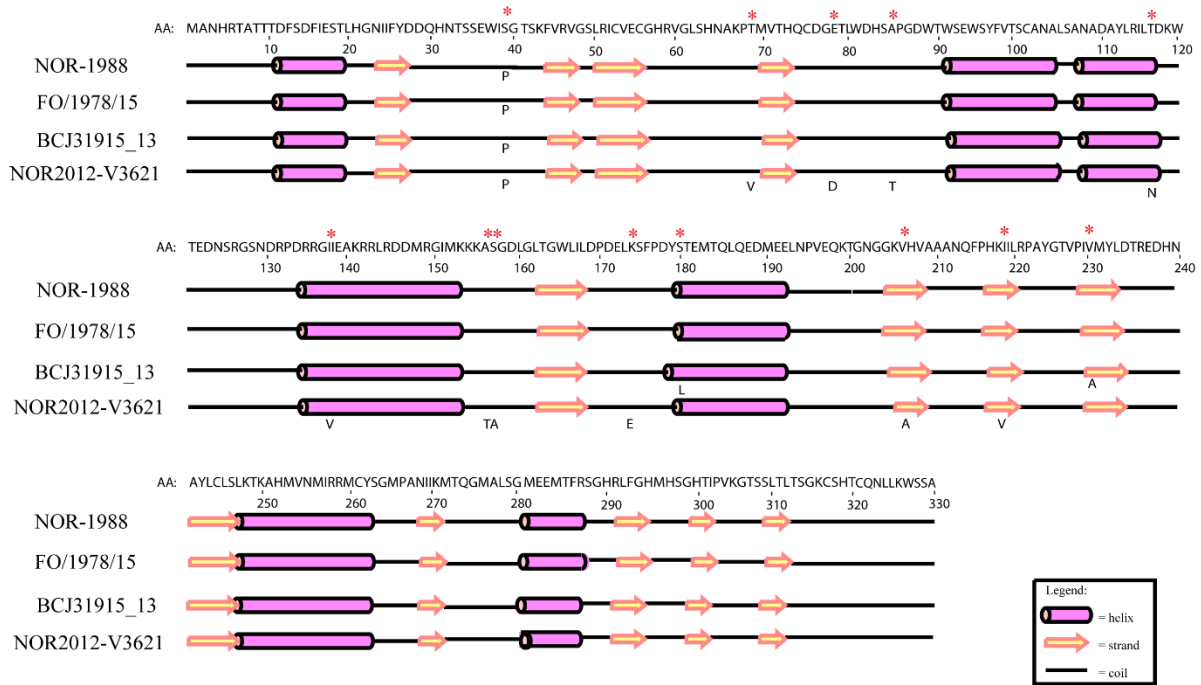
**The corresponding SNP in Norwegian HSMI isolates are highlighted in red color**

KC795571.1 CGA280-05, MK675848.1 NOR-2015/MS, MK675858.1 NOR-2015/SSK, KY429949.1 NOR2012V3621, GU994022.1 Salmo/GP-2010/NOR, KR337479.1 NOR-050607, MK675838.1 NOR-2005/TT, MK675828.1 NOR-1997

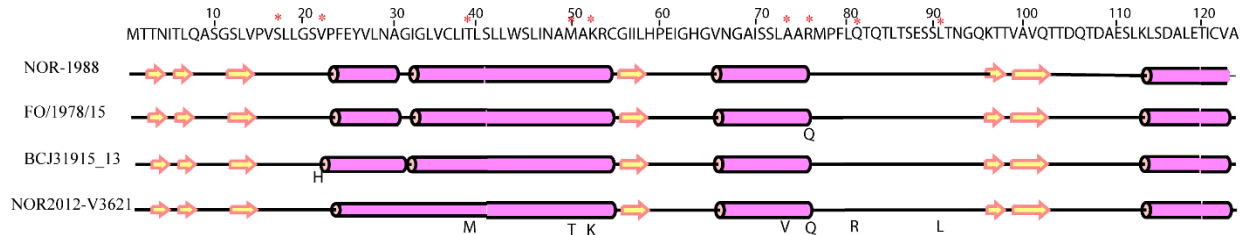


**Fig. S1.** Phylogenetic analysis of concatenated full genome amino acid sequences. PRV-2 is included as outgroup.

## A. $\sigma 3$ protein



## B. p13 protein



**Fig. S2.** Secondary structure predictions of  $\sigma 3$  and p13 proteins showing similar structure between NOR2012 and selected non-HSMI-associated strains for both proteins, respectively. Amino acid differences are indicated by red asterisks. The amino acid difference is indicated below the alignment.