

HCV DrAG Meeting #10 , April 23rd 2013

HCV Genotyping and Subtyping Methods

Examples from Boehringer Ingelheim Sponsored Studies



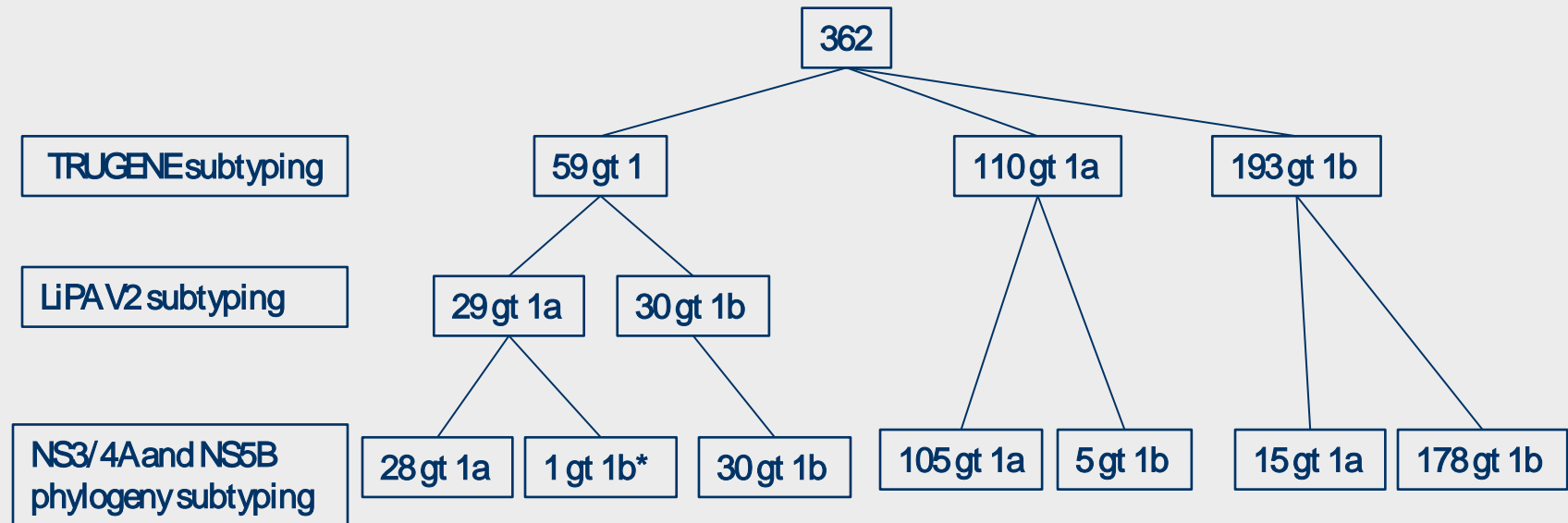
Boehringer
Ingelheim

NS3/ 4A or NS5B nucleotide sequence to genotype/subtype HCV isolates

NS5B	AD38799_C1b	AY051292_C1c	AB047639_C2a	D17763_C3a	Y11604_C4a	AF064490_C5a	AY859526_C6a	EF108306_C7a
AF009606_C1a	19.7%	19.5%	30.6%	30.4%	27.4%	26.8%	26.9%	30.3%
AD38799_C1b		21.4%	31.2%	30.4%	26.2%	27.6%	28.3%	31%
AY051292_C1c			31.8%	30.1%	28.3%	27.9%	29.6%	32.2%
AB047639_C2a				33%	31.6%	30.9%	31.1%	31.6%
D17763_C3a					30.5%	29.4%	30.5%	31.9%
Y11604_C4a						27.6%	28.8%	32.4%
AF064490_C5a							28.4%	32.7%
AY859526_C6a								32.1%

NS3/ 4A	AD38799_C1b	AY051292_C1c	AB047639_C2a	D17763_C3a	Y11604_C4a	AF064490_C5a	AY859526_C6a	EF108306_C7a
AF009606_C1a	17.6%	17.4%	31%	29.6%	27.3%	28.3%	28%	31.9%
AD38799_C1b		18.8%	30.7%	29.4%	29.2%	28.4%	27.4%	33.5%
AY051292_C1c			30.1%	29.2%	27.5%	27.6%	26.7%	38.9%
AB047639_C2a				31.9%	30.9%	29.3%	30.9%	33.6%
D17763_C3a					27.1%	29.8%	28%	31.8%
Y11604_C4a						29%	27.6%	33.6%
AF064490_C5a							29.2%	31.9%
AY859526_C6a								31.8%

- Matrix of % differences in nucleotide sequence from pairwise comparisons of NS3/4A or NS5B.
- Subtype representatives from Table 1 of Simmonds P. et al. 2005 [Consensus Proposals for a Unified System of Nomenclature of Hepatitis C Virus Genotypes. *Hepatology* 42 (4):962-973]
- Results support the use of the NS3/ 4A nucleotide sequence to subtype HCV.



- Truegene vs. NS3/4A or NS5B
 - GT1 : 16.3% no subtype
 - GT1a: 4.5% discordance
 - GT1b: 7.8% discordance
- 100 % Concordance between NS3/4A and NS5B phylogenetic analyses

SILEN-C1

HCV GT1 Subtyping

Trugene HCV 5'NC Genotyping Assay	61 GT1		131 GT1a			235 GT1b	
NS3/4A phylogeny	36 GT 1a	25GT 1b	7GT 1b	1GT 1e	1GT 4	11GT 1a	3GT 6
	14.3% No subtype		6.9% discordance			5.9% discordance	

STARTVerso 1,2,3 HCV GT1 Subtyping

1951 samples with both NS3 sequence and LiPA v2 results

Versant HCV Genotype LiPA V2	7 GT1		911 GT1a		1033 GT1b		
NS3/4A phylogeny	4 GT 1a	3 GT 1b	910 GT 1a	1 Other GT1	1025 GT 1b	7 GT 1a	1 Other GT1

0.36%
No subtype

0.11%
discordance

0.77%
discordance