Phylogenetic Analysis of Spread of Hepatitis C Virus Identified during HIV Outbreak Investigation, Unnao, India

Appendix

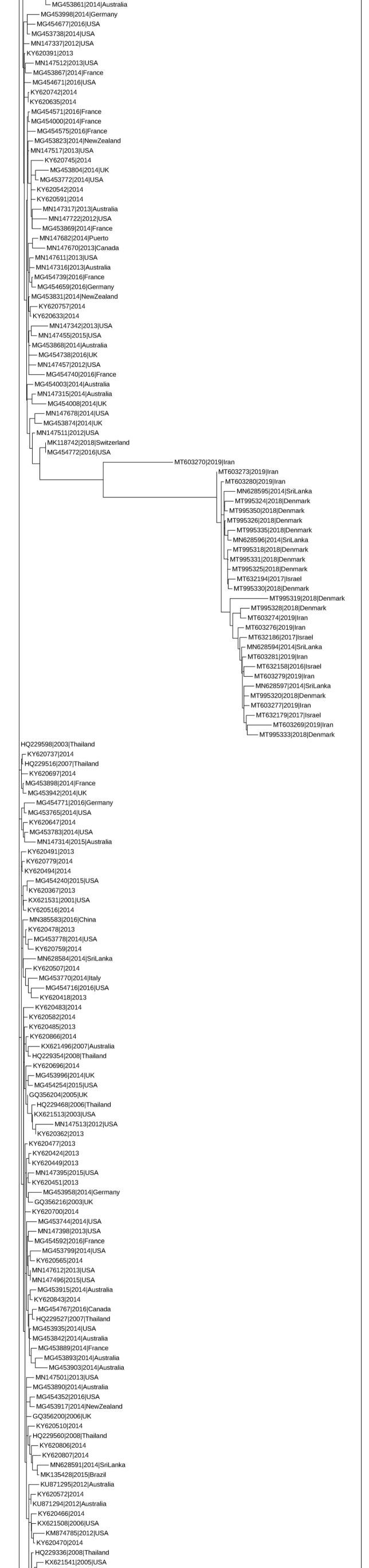
Appendix Table. Characteristics of anti-HCV reactive and nonreactive persons identified during HIV outbreak investigation, Unnao, India, by HIV serostatus*

	Anti-HCV	Anti-HCV	
Characteristic	reactive	nonreactive	p-value
Total no. persons	98 (100)	60 (100)	
Mean age, y	41	38	0.289
Sex			
Μ	42 (42.86)	29 (48.33)	0.515
F	56 (57.14)	31 (51.67)	
Area of residence	. ,	. ,	
Chakmeerapur	44 (44.90)	26 (43.33)	0.419
Kirvidyapur	03 (3.06)	05 (8.33)	
Premganj	51 (52.04)	29 (48.33)	
Occupation	()	, , , , , , , , , , , , , , , , , , ,	
Unemployed	46 (46.94)	19 (31.67)	0.157
Farmer	17 (17.35)	15 (25.00)́	
Non-agricultural	35 (35.71)	26 (43.33)	
Ever had sex with female casual partner as reported by male participants†	()	, , , , , , , , , , , , , , , , , , ,	
Yes	03 (7.50)	03 (10.71)	0.684
No	37 (92.50)	25 (89.29)	
Ever had sex with male casual partner as reported by female participants	. ,	. ,	
Yes	01 (1.82)	0	1.000
No	54 (98.18)	31 (100)	
Condom use during last sex†	. ,		
Yes	14 (15.91)	13 (24.07)	0.273
No	74 (84.09)	41 (75.93)	
ntravenous injection in last 5 years	()	, , , , , , , , , , , , , , , , , , ,	
Yes	74 (75.51)	37 (62.71)	0.104
No	24 (24.49)	22 (37.29)	
ntramuscular injection in last 5 years	()	, , , , , , , , , , , , , , , , , , ,	
Yes	72 (73.47)	38 (63.33)	0.213
No	26 (26.53)	22 (36.67)	
Syringe and needle used while receiving intramuscular injection in last 5 years†	. /	. /	
Injected by used syringe and needle	12 (12.24)	02 (3.33)	0.046
Injected by new syringe and needle	73 (74.49)	54 (90.0)́	
HIV infection	. ,	. ,	
Seropositive	28 (28.57)	05 (8.33)	0.002
Seronegative	70 (71.43)	55 (91.67́)	

*Values are no. (%) except where indicated. HCV, hepatitis C virus.

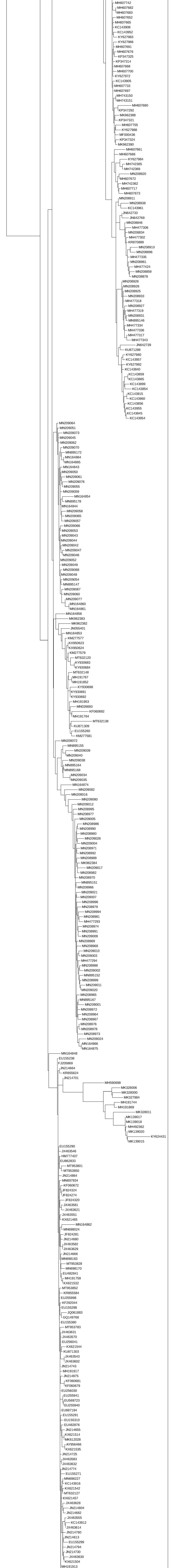
†Because of nonresponse from some participants, numbers may not sum to total.

- MG454433|2016|UK – MK135417|2015|Brazil MG454399|2016|USA - MN147357|2013|USA -MG453749|2014|USA -KY620548|2014 MG453962|2014|UK MG454020|2014|USA MG454021|2014|Germany MG453886|2014|Australia MG453773|2014|USA - KY620762|2014 KY620397|2013 - KY620492|2013 - HQ229551|2008|Thailand -KY620768|2014 – HQ229582|2003|Thailand - MG453787|2014|Australia — MK135423|2016|Brazil KX621501/2008/Australia - MN628574|2014|SriLanka - MN147603|2013|USA - MG454612|2016|Germany LMG453987|2014|Canada - KY620735|2014 – MG453788|2014|Australia KY620454|2014 r MG453763|2014|USA - KY620606|2014 - KY620557|2014 -KY620402|2013 KY620596|2014 -MG454474|2016|USA -KY620810|2014 MG453837|2015|Australia MN147476|2013|USA MN147350|2013|USA -MG454717|2016|USA MN147387|2013|USA KY620780|2014 - MK170231|2018|Switzerland -MK135418|2016|Brazil MG453875|2014|UK KY620715|2014 ____MG454424|2016|USA — MG453943|2014|Canada MG454625|2016|France - MG453841|2014|NewZealand -KY620628|2014 - MG454759|2016|Australia MG454004|2014|Germany KY620787|2014 — MK118744|2018|Switzerland ¹ JN588558|2009|Pakistan - KY620519|2014 - HQ229586|2003|Thailand - HQ229429|2009|Thailand -KY620794|2014 - MG454362|2016|Canada -KY620690|2014 -KY620869|2014 - MG453807|2014|Australia -KY620624|2014 -KY620395|2013 - KY620546|2014 KY620710|2014 - KX621502|2008|Australia KY620598|2014 HQ229367|2008|Thailand - KX621498|2007|Australia KX621499|2007|Australia - KX621470|2006|USA - KY620389|2013 ^l KY620428|2013 MG454682|2016|USA KY620712|2014 -KY620398|2013 - MG454691|2016|Canada - MG453936|2014|USA - KY620707 2014 └кү620496|2014 – HQ229505|2005|Thailand LKY620498|2014 KY620421|2013 l HQ229518|2007|Thailand -MG454761|2016|USA KY620740|2014 - KY420690|2016|Italy - KY620729|2014 – HQ229588|2003|Thailand - KX621539|2006|USA - HQ229333|2008|Thailand KY620369|2013 - MG453761|2014|USA - KY620463|2013 -KY620465|2014 - HQ229510|2005|Thailand - KY620859|2014 - MG453991|2014|France KY620601|2014 JQ717255|2010|India KY620508|2014 MG453768|2014|Italy JQ717259|2010|India [MG453910|2014|France LKY620783|2014 – КҮ620781|2014 - КҮ620394|2013 - MN147532|2013|Australia MG453873|2014|Australia – MG453808|2014|Australia -KY620698|2014 KY620772|2014 MG453907|2014|France MG454273|2016|USA MG453929|2014|France - KY620529|2014 - HQ229366|2008|Thailand KY620691|2014 – MG454302|2016|USA - MG453880|2014|Australia - KY620680|2014 - MN147456|2013|USA - MN147318|2013|Australia - MN147514|2013|USA ┌MG454709|2016|Australia MG453832|2014|Australia MG454418|2016|USA – MG454514|2016|France KM587622|2012|Australia - MN147607|2014|USA MG454743|2016|Germany - KY620873|2014 - MN147545|2014|Australia - KX621480|2007|Canada - MG454742|2016|Australia - MG453860|2014|France -KY620518|2014 - MN628586|2014|SriLanka – MG454583|2016|France - MN147303|2014|Sweden KY620417|2013 KY620623|2014 KY620611|2014 -MG454001|2015|France - MG454315|2016|USA – MG453928|2014|Germany -KY620618|2014 - MG453941|2014|Germany - KY620665|2014 – MN147536|2014|Australia -KY620380|2013 -KY620751|2014 ^しMG453989|2014|USA KY620775|2014 - KY620462|2013 - KY620526|2014 - MG453887|2014|Australia - KY620595|2014 - MG454082|2015|USA - MG453764|2014|USA - KY620524|2014 - HQ229407|2008|Thailand MG453762|2014|USA Пкү620640|2014 - MG454553|2016|France ¹MG454384|2016|USA KY620617|2014 MG453839|2015|Australia -MG454016|2014|USA KY620750|2014 - KY620593|2014 -KY620605|2014 ___ KY620689|2014 ^しMG453754|2014|USA KY620603|2014 KY620714|2014 MG454702|2016|Australia KX621507|2007|Australia MG454746|2016|NewZealand MG454653|2016|USA -MG453930|2014|USA -MG453859|2014|Australia KY620681|2014 -KY620706|2014 - KY620653|2014 KY620420|2013 HQ229585|2003|Thailand -MG454747|2016|UK KC844044|2011|China г KY620771 2014 MG453815|2014|USA MG453777|2014|USA MG453819|2014|UK [|]MG453816|2015|USA MG453760|2014|USA KY620874|2014 MG453786|2014|UK - KY620426|2013 - KY620644|2014 -KY620461|2013 - MN147458|2013|USA ¹ KX621475|2010|USA MG453914|2014|Canada -MG453864|2014|UK - MG453813|2014|Australia -MG453945|2014|UK MG453894|2014|Australia KY620769|2014 KY620744|2014 KY620743|2014 -KY620480|2013 - KY620396|2013 -KY620440|2013 -MG454710|2016|UK - MG453827|2014|UK -KY620642|2014 ^L KY620865|2014 -KY620484|2014 KY620419|2013 └─ KY620443|2013 — MG453940|2014|Germany – MG453993|2014|France - MG453937|2014|Germany MG454488|2016|Canada - MG454718|2016|Australia – MN147354|2013|USA MN147560|2014|USA LKY620568|2014 - MK170229|2018|Switzerland MG453852|2014|Australia - KY620840|2014 -MG454669|2016|USA MG454760|2016|Germany MG454692|2016|France - MN147305|2013|Sweden – MG454724|2016|Canada - KY620643|2014 MG453986|2014|UK - KY620676|2014 - MG454730|2016|France JF509177|2006|UK - KY620411|2013 L KX620782 2014 └ MG454497|2016|France MG453740|2014|USA - MG454105|2015|USA - MN147705|2013|Germany MN147498|1999|USA ¹MG453865|2014|UK MG453757|2014|USA -MN147610|2014|USA -KY620581|2014 - KY620436|2013 - MN147386|2013|USA - MG454708|2016|USA r KY620435|2013 - MG454651|2016|UK – KY620448|2014 - KY620641|2014 KY620399|2013 KX621516|2001|USA - MG453838|2014|Australia -KY620755|2014 KY620692|2014 - MG453741|2014|USA -MG453872|2014|France - MG453830|2014|Canada MG454697|2016|UK MG454289|2016|USA - KY620804|2014 – MG453796|2014|Australia KX621487|2010|Canada – KU871296|2013|Australia – KY620416|2013 - KY620732|2014 MG453782|2014|USA -KY620545|2014 LMG453877|2014|France – MG454728|2016|Australia - MG454559|2016|USA └─ MG454723|2016|Canada — MG454267|2015|USA KY620511|2014 1_{KY620444}|2013 – HQ229401|2008|Thailand - KY620671|2014 HQ229444|2009|Thailand – MG454531|2016|USA – HQ229587|2003|Thailand - KY620793|2014 – MG453771|2014|Italy - MG453785|2014|USA KY620400|2013 HQ229550|2008|Thailand -KY620600|2014 └─ КҮ620645|2014 - MG453805|2014|USA - MG454676|2016|USA ^LKY620441|2013 - MG454737|2016|USA - HQ229495|2004|Thailand - MG454712|2016|France -KY620366|2013 — KC441470|2006|China - MN147602|2015|USA - KY620795|2014 KX621530|2002|USA KC441473|2011|China KY620619|2014 KY620752|2014 KX621429|2004|Australia GQ356202|2006|UK -MG453821|2014|USA -KY620580|2014 KY620509|2014 - MG454006|2014|UK MG454332|2016|USA



- MG454721|2016|USA r KY620550|2014 - KY620766|2014 KY420715|2015|Italy - KY620765|2014 r KY420695|2016|Italy CKY420694|2016|Italy -MG453811|2014|UK rKY620533|2014 ¹ KY420696|2016|Italy - MG453812|2014|UK KY620636|2014 KY620534|2014 – MG454687|2016|Australia LMG453809|2014|UK KY620763|2014 - MG454685|2016|NewZealand MN147704|2015|Germany MG454686|2016|Canada MG453927|2014|UK - MG453810|2014|UK MG453926|2014|Australia MG453925|2014|France KY620764|2014 -MG454403|2016|Canada -KY620476|2014 KY620602|2014 -KY620493|2014 ┌ HQ229589|2003|Thailand – MN628590|2014|SriLanka -MG454681|2016|USA – MG453904|2014|Australia -KY620505|2014 - KY620789|2014 ^l MK135419|2016|Brazil -MG453776|2014|USA - HQ229503|2005|Thailand MG454745|2016|Australia -KY620664|2014 - KY620569|2014 - HQ229406|2008|Thailand - MG453753|2014|USA -MG453743|2014|USA - KY620552|2014 MG453824|2014|Australia -KY620437|2013 -KY620427|2013 – MG453844|2014|France – KY620520|2014 -KY620410|2013 HQ229362|2008|Thailand HQ229363|2008|Thailand HQ229458|2006|Thailand -KY620871|2014 - MN147680|2013|USA - MG453802|2014|Australia _MG453871|2014|France - MG453781|2014|Canada - MG454556|2016|Germany - MN147708|2014|Germany KY620730|2014 KY620863|2014 - MK135426|2016|Brazil MN147628|2013|USA ⁷MN147531|2015|Australia MN628575|2014|SriLanka MN231295|2018|China MN628585|2014|SriLanka ^LMN628583|2014|SriLanka KY620584|2014 MG454048|2015|USA -KY620482|2013 ⁷KC441467|2006|China -KY620637|2014 KY620434|2013 KX621503|2009|Australia - KY620864|2014 MG454509|2016|USA MN628577|2014|SriLanka - MG453825|2014|Australia - MN147606|2014|USA -KY620747|2014 MG453791|2014|UK KY620514|2014 KY620622|2014 KY420716|2015|Italy MG454667|2016|USA MG453906|2014|UK KY620728|2014 MG453892|2014|UK KY620620|2014 KY620537|2014 KY620536|2014 -KY620414|2013 -MG454076|2015|USA _Г КҮ620748|2014 $L_{KX621490|2009|Australia}$ -KY620489|2013 Кү620699|2014 |KY620413|2013 ⁷KY620405|2013 KY620587|2014 KY620746|2014 HQ229593|2003|Thailand KC441471|2006|China HQ229466|2006|Thailand - KY420689|2016|Italy - HQ229375|2008|Thailand -KY620651|2014 - MG453883|2014|France - KY620382|2013 _Γ KX621428|2008|Australia - KY620677|2014 - KY620663|2014 HQ229596|2003|Thailand GQ356205|2006|UK -MG454368|2016|USA - MG453954|2014|Germany -KY620850|2014 - HQ229474|2006|Thailand HQ229471|2006|Thailand - KY620430|2013 - HQ229601|2003|Thailand └КҮ620594|2014 -MG454042|2015|USA ^しHQ229378|2008|Thailand KY620703 2014 _ KY620504|2014 しJQ717256|2011|India -KY620368|2013 - MG453833|2014|Australia MG454324|2016|Canada MG454276|2016|USA -KY620669|2014 - KY620666|2014 -KY620377|2013 -KY620522|2014 - KY620583|2014 **ГКҮ620659|201**4 -KY620809|2014 HQ229391|2008|Thailand -KY620817|2014 -MN147304|2013|Sweden KY620423|2013 - KY620713|2014 GQ356211|2006|UK - HQ229478|2005|Thailand - HQ229445|2009|Thailand – KX621537|2003|USA MG453775|2014|USA MG454696|2016|Australia - MN147669|2013|Canada MG454699|2016|Germany - MG454011|2014|France KY620846|2014 KY620823|2014 - MG453835|2014|Australia KY620658|2014 LKY620445|2014

Appendix Figure 1. Phylogenetic tree of HCV global isolates derived using NS5B gene by maximumlikelihood method. Samples isolated from Unnao, India, sequenced in this study are shown in red for HIV/HCV co-infection cases and in blue for HCV monoinfection cases.



-EU482864 JN214734 — EU595699 _Г КЈ739781 - KR855599 -KJ739762 -EU256086 JN214770 KJ739775 - JN214769 EU482840 EU482834 EU482871 EU862841 - KR855595 - EU255996 ^LEU482854 - JN214752 - EU255952 JN214781 - EU482869 _ JF824194 L JX463618 JX463562 _Г JX463549 LJX463611 JX463557 -EU155349 - KX621528 - HM041979 - JN214719 - EU482848 LEU256107 - MN697948 - EU256023 ^LEU482872 - EU155295 EU256006 - EU155248 FJ182000 - JX463528 LEU155348 KF060664 KJ739760 - KR855613 EU155347 _L MN698212 └- KF060673 JX463567 _L MN697956 г EU660384 – KR855592 EU155242 MK185619 - MF039298 — MH191904 Г JQ924887 - EU155240 - EU255964 -FJ024274 MG776172 MG776189 ^LMN661327 JX463620 - KF060669 EU256071 -MN698140 – JX463615 LEU155246 HM041983 HM041978 - JN214640 JX463540 ∏JX463596 – AY956465 Скј739758 - HM041975 EU155243 -JX463619 KJ739752 ^LEU255951 – JX463564 - GQ913854 └- KJ739769 - HQ229096 – KJ739764 KJ739774 -KC143917 -KX621538 - MH191939 KF060663 MN698207 KJ739765 ^l KJ739771 JF824299 _Г НМ000539 rHM000541 HM000542 KX621466 ∟ MH191783 KX621462 ПМК612013 _Г КХ621460 HQ229264 - KX621468 L JX463526 EU256022 MT212179 - EU482844 – KX621467 L JF824261 JF824292 — JF824222 JF824166 ┌ JF824205 LJF824284 ∫^{JF824321} JF824163 – JF824190 LJF824183 JN214694 - JX463597 — KX621458 LKX621448 – EU155283 MH191762 -MH191980 _F JQ924869 _Г НМ000534 - HM000533 HM000536 HM000537 HM777369 MH191914 MH192014 _C MH191799 MH191778 — JN214618 L ¹MH191932 - HM041980 EU256035 EU255966 - EU862834 LKM246348 HM041984 - HQ229261 KF060665 _Г JX463591 JX463552 - EU256034 EU155322 -EU660385 KJ739761 — JN214659 – HM462250 - JF824293 -EU256104 – KJ739740 GQ451336 -KX621543 - JN214647 JF824186 GQ913857 KJ739759 KJ739747 - EU255955 - KF060684 ^LKJ739763 _г KR855585 KR855588 KX621425 EU255930 EU155342 - JF824318 - MN697898 _Г MG776132 ^LMN697914 KJ739744 JX463623 — JX463580 L-KR855606 し LEU155309 JN214820 EU255959 - MK185616 -KX230715 -KX230723 EU482862 - KX230709 ___ KX230731 KX230728 JN214861 - KX621500 - JN214690 ^L JN214798 - JN214715 EU234064 _F JN214886 └─ MH191893 EU255989 EU155294 JN214688 -HM041977 ^LKM246349 _г JX463579 JX463640 JN214686 JN214821 - JN214860 - KC143871 JX463542 JX463590 EU155314 HQ261815 HQ229263 _F JN214729 KX230716 HM041973 _ JN214780 - JF824295 ^l KX621512 MH191730 MH191871 _Г КЈ739748 LEU255954 EU155341 MH191732 – EU255995 LEU155351 EU155289 FEU862831 JF824256 JF824298 JX472007 - EU255948 LEU155282 MH191935 AY956464 KX621515 - EU260395 - KM246352 JX463588 _Г КМ246360 ^l KM246361 ┌ JN214816 JN214740 - HM000528 HM000519 HM000525 HM000527 KX621450 EU256050 _KT735187 ⁷KT735186 _Г JX463604 JN214712 Ղ_{EU256031} JF824240 JN214868 LKF273119 _г МН191755 ∟ EU255977 L EU256096 - HM777404 CEU155293 ₁JX463578 ⁷JX463622 - JN214614 L_{KX621511} JQ924886 -MH191941 JX463584 7JX463638 KF060675 – JN214657 LFJ390394 JN214610 - EU255937 MK185620 JN214777 HM000529 HM000530 HM000531 ¹HM000532 MN698191 MN698087 MN698200 JN214759 _____MN698114 └─KC143921 KF060683 KF060682 -EU155339 MF039300 - EU155353 MT632115 - EU255949 ¹KJ739772 KJ739750 KJ739741 MH191993 -EU256021 -KF060674 -EU255934 KJ739745 — MT632155 MK185617 П мн192001 Ц└ МН191824 MN697754 ₁MH191926 ∟мн191954 MN697759 MN697783 MN697766 MN697771 [|]MN697815

Appendix Figure 2. Phylogenetic tree of HCV global isolates derived using core gene by maximumlikelihood method. Samples isolated from Unnao, India, sequenced in this study are shown in red for HIV/HCV coinfection cases and in blue for HCV monoinfection cases.