

### DENV/ZIKV donors

**Fig. S1:** Neutralization activity against ZIKV and DENV infection using plasma samples from Naïve donors (left panels), DENV donors (middle left panels), ZIKV donors (middle right panels) and DENV/ZIKV donors (right panels). Comparison of the neutralization titer (Neut<sub>50</sub>) against DENV1-4 infection *in vitro* between ZIKV donors with or without previous DENV infection.

**Table S1 | Characteristics of the Zika virus patient cohort used for the epitope reactivity study**

Donor <sup>a</sup>	HLA Genotyping				Serological test			Neutralizing activity (Neut50) <sup>c</sup>					PCR	
	HLA-A	HLA-B	HLA-C	DRB1	DENV		ZIKV	DENV1	DENV2	DENV3	DENV4	ZIKV	DENV	ZIKV
1	02:01:01	35:43:01	01:02:01	04:07:01	-	-	+	17	23	16	25	<b>311</b>	-	-
	24:02:01	51:01:01	01:02:01	12:01:01										
16	01:01:01	15:17:01	07:01:01	13:01:01	-	+	+	158	79	47	<b>357</b>	<b>2270</b>	-	+
	03:01:01	38:01:01	12:03:01	13:02:01										
20	01:01:01	07:02:01	07:02:01	04:11:01	+	+	+	<b>2049</b>	<b>452</b>	<b>214</b>	<b>438</b>	<b>2470</b>	+	+
	31:01:02	39:05:01	07:02:01	15:01:01										
21	31 <sup>b</sup>	35:01	01 <sup>b</sup>	04:01:01	-	-	+	13	13	19	14	<b>566</b>	-	+
	03:01	18:01	17:02	03:01										
26	02:01:01	07:02:01	01:02:01	14:02:01	-	+	+	<b>5397</b>	<b>601</b>	<b>735</b>	<b>235</b>	<b>2476</b>	-	+
	24:02:01	48:01:01	07:02:57	15:01:01										
28	02:17:01	40:02:01	03:05	04:11:01	-	+	+	<b>75</b>	39	24	<b>67</b>	<b>5587</b>	-	-
	29:02:01	44:03:01	16:01:01	07:01:01										
33	24:02:01	15:46	01:02:01	04:07:01	-	+	+	<b>306</b>	114	63	51	<b>829</b>	-	-
	24:02:01	35:31	03:05	04:07:01										
35	24:02:01	14:01:01	03:05	01:03	-	-	+	11	13	10	<10	<b>340</b>	-	-
	68:01:02	40:02:01	05:129	08:02:01										
37	02:45	35:01:01	04:01:01	01:03	-	-	+	18	12	35	12	<b>280</b>	-	-
	11:01:01	50:01:01	06:02:01	13:01:01										
42	26:01:01	35:01:01	04:01:01	04:02:01	-	-	+	11	12	25	12	<b>1689</b>	-	-
	26:01:01	38:01:01	06:76:02	11:04:01										
46	32:01:01	39:01:01	06:02:01	04:07:01	-	-	+	14	11	12	11	<b>903</b>	-	-
	68:01:02	50:01:01	07:02:01	07:01:01										
53	23:01:01	40:02:01	01:10	07:01:01	-	+	+	<b>464</b>	116	29	<b>543</b>	<b>3081</b>	-	+
	31:01:02	44:03:01	04:01:01	08:02:01										
55	03:01:01	35:01:01	04:11:01	01:01:01	-	+	+	<b>2395</b>	<b>612</b>	<b>222</b>	<b>301</b>	<b>3196</b>	-	-
	11:01:01	51:01:01	15:02:01	07:01:01										

*Continued*

**Table S1 | Characteristics of the Zika virus patient cohort used for the epitope reactivity study – cont'd**

Donor <sup>a</sup>	HLA Genotyping				Serological test			Neutralizing activity (Neut50) <sup>c</sup>					PCR	
	HLA-A	HLA-B	HLA-C	DRB1	DENV		ZIKV	DENV1	DENV2	DENV3	DENV4	ZIKV	DENV	ZIKV
56	02:01:01	15:17:01	05:01:01	03:01:01	-	+	+	<b>215</b>	55	<10	156	<b>110</b>	-	+
	02:01:01	18:01:01	07:01:01	11:01:01										
59	03:01:01	35:43:01	01:02:01	04:01:01	-	-	+	31	30	16	24	<b>194</b>	-	+
	24:02:01	40:01:01	03:04:01	04:07:01										
60	02:05:01	55:01:01	01:02:01	11:01:01	-	-	+	11	<10	10	10	<b>514</b>	-	+
	69:01	58:01:01	07:01:01	13:03:01										
63	02:01:01	07:02:01	07:02:01	15:01:01	-	+	+	<b>999</b>	187	126	144	<b>4057</b>	-	-
	23:01:01	51:08:01	17:02:01	15:03:01										
66	02:01:01	39:01:01	03:02:01	08:02:01	-	+	+	<b>2572</b>	<b>471</b>	<b>1386</b>	167	<b>2905</b>	-	-
	03:01:01	40:02:01	07:29:01	15:01:01										
69	01:01:01	35:01:01	01:02:01	04:07:01	+	+	+	<b>749</b>	<b>463</b>	<b>961</b>	92	<b>1205</b>	+	+
	24:02:01	35:43:01	04:01:01	13:05:01										
77	02:01:01	40:02:01	04:01:01	13:01:01	-	-	+	17	12	15	33	<b>110</b>	-	-
	02:01:01	51:01:01	07:01:01	14:02:01										

<sup>a</sup> The shaded rows show donors with previous DENV infection

<sup>b</sup> Allelic variant was not determined

<sup>c</sup> The values in each cell are the 50% neutralization titers determined from two replicates of one experiment. The highest titers for each sample is indicated in boldface

**Table S2. Characteristics of antigenic peptides from ZIKV identified in this study**

Peptide <sup>a</sup>	Sequence <sup>b</sup>	Donors	HLA <sup>c</sup>	SFC/million PBMC <sup>d</sup>		Predicted epitope	Predicted HLA	Score (rank) <sup>e</sup>
				15-mer	9-mer			
C <sub>13-27</sub>	IVNML <u>LKRGVARV</u> SPF	28	A <u>02</u> ,29; B40,44; C03,16; DRB104,07	170	<20	MLKRGVARV	A0217	1.9
		60	A <u>02</u> ,69; B55,58; C01,07; DRB111,13	50	60		A0205	1.3
C <sub>85-99</sub>	KKDLA <u>AAMLRI</u> INARK	26	A <u>02</u> ,24; B07,48; C01,07; DRB114,15	100	<20	AAMLRIINA	A0201	4.5
		60	A <u>02</u> ,69; B55,58; C01,07; DRB111,13	<20	75	KDLAAMLRI	B5501	1.4
	KKDLA <u>AAMLRI</u> INARK	28	A <u>02</u> ,29; B40,44; C03,16; DRB104,07	230	65		B4002	2.0
E <sub>455-469</sub>	GMSWFSQILIGTLLM	1	A <u>02</u> ,24; B35, <u>51</u> ; C01,01; DRB104,12	120	NT	GMSWFSQILI	A0201	0.9
		77	A <u>02</u> , <u>02</u> ; B40, <u>51</u> ; C04,07; DRB113,14	35	NT	MSWFSQILI	B5101	0.12
NS1 <sub>63-77</sub>	MEN <u>IMWRS</u> VEGELNA MEN <u>IMWRS</u> VEGELNA	21	A31,03; B35,18; C01,17; DRB1 <u>04</u> ,03	65	50	MENIMWRSVEGELNA	DRB10405	50
		28	A <u>02</u> ,29; B40,44; C03,16; DRB1 <u>04</u> ,07	245	58	IMWRSVEGEL	A0217	0.5
		56	A <u>02</u> , <u>02</u> ; B15,18; C05,07; DRB103,11	70	148		A0201	1.2
NS1 <sub>83-97</sub>	G <u>VQLT</u> VVVGSVKNPM	26	A <u>02</u> ,24; B07,48; C01,07; DRB114,15	145	23	VQLTVVVGSV	A0201	1.7
		28	A <u>02</u> ,29; B40,44; C03,16; DRB104,07	165	35		A0217	3
NS1 <sub>163-177</sub>	FHTSV <u>WLKV</u> REDYSL FHTSV <u>WLKV</u> REDYSL	28	A02,29; B40,44; C03,16; DRB1 <u>04</u> ,07	230	75	HTSVWLKVREDY	A0101	0.4
		55	A03,11; B35,51; C04,15; DRB101,07	110	125	HTSVWLKVR	A3101	0.4
		46	A32,68; B39,50; C06,07; DRB1 <u>04</u> ,07	50	32		A6801	0.6
		20	A01,31; B07,39; C07,07; DRB1 <u>04</u> ,15	310	105	VWLKVREDY	A2902	1.3
						FHTSVWLKV	B3905	0.4
							B3901	0.4
NS1 <sub>275-289</sub>	IRFEE <u>CPG</u> TKVHVEE	33	A24,24; B15, <u>35</u> ; C01,03; DRB104,04	215	55	CPGTKVHVE	B3501	8.5
		55	A03,11; B <u>35</u> ,51; C04,15; DRB101,07	130	115		B3531	6.5

*Continued*

**Table S2. Characteristics of antigenic peptides from ZIKV identified in this study – cont'd**

Peptide <sup>a</sup>	Sequence <sup>b</sup>	Donors	HLA <sup>c</sup>	SFC/million PBMC <sup>d</sup>		Predicted epitope	Predicted HLA	Score (rank) <sup>e</sup>
				15-mer	9-mer			
NS2B <sub>117-131</sub>	AAGAWYVYVKTGKRS	55	A03,11; B35,51; C04,15; DRB101,07	445	NT	AAGAWYVYVK	A0301	0.6
							A1101	0.12
						YVYVKTGKR	A0301	1.8
NS3 <sub>219-233</sub>	TVILAPTRVVAAEME	53	A23,31; B40,44; C01,04; DRB107,08	100	NT	TVILAPTRVVAAEME	DRB10802	1.5
		66	A02,03; B39,40; C03,07; DRB108,15	65	NT	ILAPTRVVAA	A0201	1.6
NS3 <sub>271-285</sub>	LQPIRVPNYNLYIMD	42	A26,26; B35,38; C05,06; DRB104,11	165	NT	VPNYNLYIM	B3501	0.06
NS3 <sub>311-325</sub>	AAIFMTATPPGTRDA	28	A02,29; B40,44; C03,16; DRB104,07	255	85	AAIFMTATPPGTRDA	DRB10401	4
						FMTATPPGT	A0217	5.5
	AAIFMTATPPGTRDA	33	A24,24; B15,35; C01,03; DRB104,04	215	30	IFMTATPPG	A2402	5
NS4A <sub>86-100</sub>	VTLGASAWLMWLSEI	55	A03,11; B35,51; C04,15; DRB101,07	178	NT	SAWLMWLSEI	B5101	0.9
		60	A02,69; B55,58; C01,07; DRB111,13	125	NT	VTLGASAWL	A6901	1.3
						LGASAWLMW	B5801	0.07
NS4B <sub>112-126</sub>	AIILLVAHYMYLIPG	28	A02,29; B40,44; C03,16; DRB104,07	60	58	AIILLVAHY	A2902	0.6
		37	A02,11; B35,50; C04,06; DRB101,13	75	30		A1101	3.5
	AIILLVAHYMYLIPG	60	A02,69; B55,58; C01,07; DRB111,13	100	68	LLVAHYMYL	A0205	0.3
	AIILLVAHYMYLIPG	60	A02,69; B55,58; C01,07; DRB111,13	100	35	LVAHYMYLI	A6901	0.15
							A0205	0.2
NS5 <sub>13-27</sub>	KARLNQMSALEFYSY	55	A03,11; B35,51; C04,15; DRB101,07	260	NT	MSALEFYSY	B3501	0.15
		69	A01,24; B35,35; C01,04; DRB104,13	145	NT		A0101	0.09

*Continued*

**Table S2. Characteristics of antigenic peptides from ZIKV identified in this study – cont'd**

Peptide <sup>a</sup>	Sequence <sup>b</sup>	Donors	HLA <sup>c</sup>	SFC/million PBMC <sup>d</sup>		Predicted epitope	Predicted HLA	Score (rank) <sup>e</sup>
				15-mer	9-mer			
NS5 <sub>293-307</sub>	WFFDEN <u>HPYRTWAYH</u>	55	A03,11; B <u>35</u> ,51; C04,15; DRB101,07	1580	308	HPYRTWAYH	B3501	0.4
	W <u>FFDENHPYRTWAYH</u>	69	A01,24; B <u>35,35</u> ; C01,04; DRB104,13	40	218	FFDENHPY	A0101	1.6
NS5 <sub>297-311</sub>	<u>ENHPYRTWAY</u> HGSYE	55	A03,11; B <u>35</u> ,51; C04,15; DRB101,07	1280	358	NHPYRTWAY	B3501	3
	EN <u>HPYRTWAYHGSYE</u>	69	A01,24; B <u>35,35</u> ; C01,04; DRB104,13	75	188	YRTWAYHGSY	B3501	1.7
	ENHPY <u>RTWAYHGSYE</u>	69	A01,24; B <u>35,35</u> ; C01,04; DRB104,13	75	205	RTWAYHGSY	A0101	0.3
NS5 <sub>345-359</sub>	TDT <u>TPYGQQRVFKEK</u>	55	A03,11; B <u>35</u> ,51; C04,15; DRB101,07	2095	523	TPYGQQRVF	A0101	0.5
		69	A01,24; B <u>35,35</u> ; C01,04; DRB104,13	785	763		A0101	0.3
		33	A24,24; B15, <u>35</u> ; C01,03; DRB104,04	1315	395		B3531	0.7
NS5 <sub>425-439</sub>	<u>EAVNDPRFWALVDKE</u>	55	A03,11; B35,51; C04,15; DRB101,07	120	125	AVNDPRFWALVDK	A1101	0.6
		56	A02,02; B15,18; C05,07; DRB103,11	90	240		A0301	1.1
		28	A02,29; B40,44; C03,16; DRB104,07	150	100		A0301	1.1
NS5 <sub>461-475</sub>	KKQGEFGKAKGSRAI	53	A23,31; B <u>40</u> ,44; C01,04; DRB1 <u>07</u> ,08	105	NT	GEFGKAKGSRAI	B4002	0.7
		28	A02,29; B <u>40</u> ,44; C03,16; DRB104, <u>07</u>	300	NT	KKQGEFGKAKGSRAI	DRB10701	32
NS5 <sub>473-487</sub>	RAIWMWLGARFLEF	55	A03,11; B35,51; C04,15; DRB101, <u>07</u>	295	NT	AIWMWLGAR	A0301	1.3
		28	A02,29; B40,44; C03,16; DRB104, <u>07</u>	210	NT	YMWLGARFL	A0217	0.03
						RAIWMWLGARFLEF	DRB10701	16

*Continued*

**Table S2. Characteristics of antigenic peptides from ZIKV identified in this study – cont'd**

Peptide <sup>a</sup>	Sequence <sup>b</sup>	Donors	HLA <sup>c</sup>	SFC/million PBMC <sup>d</sup>		Predicted epitope	Predicted HLA	Score (rank) <sup>e</sup>
				15-mer	9-mer			
NS5 <sub>546-560</sub>	RFDLENEALITNQME	28	A02,29; B <b>40</b> ,44; C03,16; DRB104,07	245	NT	NEALITNQM	B4002	0.8
		53	A23,31; B <b>40</b> ,44; C01,04; DRB107,08	190	NT		B4403	0.6
		66	A02,03; B39, <b>40</b> ; C03,07; DRB108,15	80	NT		B3901	1.8
NS5 <sub>565-579</sub>	LALAIKYTYQNKVV	28	A02,29; B <b>40</b> ,44; C03,16; DRB104,07	240	NT	LALAIKYTY	A2902	0.5
		53	A23,31; B <b>40</b> ,44; C01,04; DRB107,08	120	NT	ALAIKYTY	A2902	0.25
		56	A02,02; B15,18; C05,07; DRB103,11	150	NT	LALAIKYTY	B1517	1.2
NS5 <sub>605-619</sub>	QVV <b><u>TYALNTFTNL</u></b> VV	33	A <b>24,24</b> ; B15,35; C01,03; DRB104,04	240	NT	TYALNTFTNL	A24:02	0.09
		59	A03, <b>24</b> ; B35,40; C01,03; DRB104,04	50	42	YALNTFTNL	B35:43	0.4
							B35:31	0.25

<sup>a</sup> The position of peptides were determined according to NCBI Reference Sequence YP\_002790881.1; <sup>b</sup> The underlined and in bold sequence correspond to the 9-mer peptide tested; <sup>c</sup> The common alleles between donors are underlined and in bold; <sup>d</sup> Cumulative SFC/million PBMC; NT, not tested; <sup>e</sup> Calculated using NetMHCpan 3.0 Server: strong binders <0.5, weak binders <2.