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Electronic Supplementary Material

The Limitation of Rapid Tests for DENV2 Infection in Host with Unique Immune Status: Low NS1 Antigenemia and Deficient Antibody Responses

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Laboratory diagnosis

Serum samples collected from dengue suspected patients underwent rapid testing for NS1 and IgM/IgG by ICs during preliminary screening according to the recommended protocol (Diagnostic Kit for Dengue Virus NS1 Antigen, WANTAI, China; Diagnostic Kit for Dengue Virus IgM/IgG antibodies, WONDFO, China) (Luo *et al.* 2017). All 15 patients were diagnosed as DENV2 infection by the viral RNA using RT-PCR (DAAN, China) according to the manufacturer's instructions (Luo *et al.* 2017; Zhao *et al.* 2016).

NS1 and IgM/IgG ELISAs

Dengue NS1 antigen and IgG and IgM antibodies in sera were further determined by ELISA methods (ELISA Kit for Dengue Virus NS1 Antigen, WANTAI, China; Dengue IgM and IgG capture ELISA, PanBio, Australia).

Sequence analysis of *E* and *NS1* genes

Viral RNA was extracted from acute phase sera using the QLAamp Viral RNA Mini Kit (Qiagen, Germany), and reversely transcribed into cDNA (SuperScript ® III First-Strand Synthesis System ,Life, USA) followed by PCR amplifications of *E* and *NS1* genes. The following oligonucleotide primers 5'-GATAGTGGTTGCGTTGTGAGTTG-3' and 5'-GGCTGTGACCAAAGAGTTGAC-3' were used to amplify the full-length of *NS1* gene. For gene encoding the ectodomain of DENV2 *E* protein, 5'-ATGCGTTGYATAGGAATATCAAATAG-3' and 5'-CCCAATAGAACTTCCTTTCTTAAACCAG-3' were used. The PCR products were gel purified using QIAEX II Gel Extraction Kit (Qiagen, Germany), and cloned into pMD19-T vector (TAKARA, Japan) for nucleotide sequence analysis.

Table S1. Laboratory tests for DENV-2 infected individuals in this study

Patient	Gender	Age	Dpso[a]	NS1 test[b]	IgM/IgG tests	RT-PCR(Ct Value)[c]
Pt1	M	11	N/A	N/A	-/-	31.82
Pt2	M	36	4	+	-/-	N/A
			5	N/A	-/-	33.21
Pt3	F	54	4	-	-/-	N/A
			5	-	-/-	34.39
			32	-	-/-	>43
Pt4	M	59	9	+	-/-	N/A
			10	N/A	±/-	32.19
Pt5	M	58	5	N/A	-/-	N/A
			6	N/A	-/-	N/A
			7	N/A	N/A	31.95
Pt6	M	29	5	±	±/±	N/A
			6	N/A	N/A	37.17
Pt7	M	53	5	N/A	-/+	N/A
			6	N/A	-/+	30.36
Pt8	M	37	3	+	-/-	N/A
			5	N/A	N/A	28.56
Pt9	M	37	8	+	±/±	35.71
Pt10	F	82	4	+	-/-	N/A
			5	N/A	N/A	22.19
Pt11	F	58	2	±	-/-	N/A
			3	N/A	N/A	22.19
Pt12	F	20	5	N/A	-/-	N/A
			6	N/A	N/A	33.62
Pt13	M	24	0.5	±	-/-	N/A
			2.5	N/A	N/A	20.12
Pt14	F	45	N/A	+	-/-	26.47
Pt15	F	64	2	±	N/A	N/A
			3	N/A	N/A	23.75

[a] Days post the symptom onset.

[b] N/A, not available; +, positive; ±, weak positive; -, negtive.

[c] Ct value≥43 indicating negtive.