

Supplementary Information

Zika Virus Vertical Transmission in Children with Confirmed Antenatal Exposure.

Brasil et al.

Supplementary Table 1: Distribution of diagnostic testing per individual children and concordance of test results

| All Time points (Children)                 |                                |       | Before 90 days                             |       | After 90 days                             |       |
|--------------------------------------------|--------------------------------|-------|--------------------------------------------|-------|-------------------------------------------|-------|
| N=130 %                                    |                                |       | N=94                                       | %     | N=78                                      | %     |
| PCR serum                                  | 1                              | 0.8%  | 1                                          | 1.1%  | 2                                         | 2.6%  |
| IgM serum                                  | 5                              | 3.8%  | 1                                          | 1.1%  | 4                                         | 5.1%  |
| PCR urine                                  | 16                             | 12.3% | 17                                         | 18.1% | 11                                        | 14.1% |
| PCR serum and IgM                          | 52                             | 40.0% | 38                                         | 40.4% | 49                                        | 62.8% |
| PCR serum +<br>PCR urine                   | 1                              | 0.8%  | 1                                          | 1.1%  | 0                                         | 0.0%  |
| PCR urine,<br>IgM                          | 0                              | 0.0%  | 0                                          | 0.0%  | 1                                         | 1.3%  |
| PCR serum, urine, IgM                      | 55                             | 42.3% | 36                                         | 38.3% | 11                                        | 14.1% |
| Concordance of diagnostic test results     |                                |       |                                            |       |                                           |       |
| All time points (Assays)                   |                                |       | Assays performed<br>before 90 days of life |       | Assays performed<br>after 90 days of life |       |
| Blood PCR<br>result                        | IgM Result                     |       | IgM Result                                 |       | IgM Result                                |       |
|                                            | NEG                            | POS   | NEG                                        | POS   | NEG                                       | POS   |
|                                            | 47                             | 24    | 29                                         | 17    | 43                                        | 8     |
| Blood PCR<br>result                        | PCR urine results              |       | PCR urine results                          |       | PCR urine results                         |       |
|                                            | NEG                            | POS   | NEG                                        | POS   | NEG                                       | POS   |
|                                            | 21                             | 16    | 16                                         | 7     | 4                                         | 4     |
| IgM result                                 | PCR urine results              |       | PCR urine results                          |       | PCR urine results                         |       |
|                                            | NEG                            | POS   | NEG                                        | POS   | NEG                                       | POS   |
|                                            | 13                             | 17    | 8                                          | 10    | 4                                         | 5     |
| IgM result                                 | Serum and urine<br>PCR results |       | Serum and urine PCR<br>results             |       | Serum and Urine<br>PCR results            |       |
|                                            | NEG                            | POS   | NEG                                        | POS   | NEG                                       | POS   |
|                                            | 36                             | 32    | 24                                         | 22    | 39                                        | 9     |
| IgM result                                 | PCR urine results              |       | PCR urine results                          |       | PCR urine results                         |       |
|                                            | NEG                            | POS   | NEG                                        | POS   | NEG                                       | POS   |
|                                            | 17                             | 9     | 14                                         | 4     | 2                                         | 1     |
| Concordance between IgM and<br>PCR assays  |                                |       | 52.3%                                      |       | 51.5%                                     |       |
| Concordance between IgM and<br>serum PCR   |                                |       | 61.3%                                      |       | 54.1%                                     |       |
| Concordance between Serum and<br>urine PCR |                                |       | 55.4%                                      |       | 64.9%                                     |       |
| Sensitivity                                |                                |       | 65.5%                                      |       | 61.5%                                     |       |
| Specificity                                |                                |       | 39.6%                                      |       | 37.1%                                     |       |
| Positive predictive value (PPV)            |                                |       | 52.9%                                      |       | 52.2%                                     |       |
| Negative predictive<br>value (NPV)         |                                |       | 52.5%                                      |       | 46.4%                                     |       |
|                                            |                                |       |                                            |       | 39.0%                                     |       |
|                                            |                                |       |                                            |       | 78.3%                                     |       |
|                                            |                                |       |                                            |       | 45.5%                                     |       |
|                                            |                                |       |                                            |       | 83.0%                                     |       |
|                                            |                                |       |                                            |       | 35.7%                                     |       |
|                                            |                                |       |                                            |       | 81.3%                                     |       |
|                                            |                                |       |                                            |       | 38.5%                                     |       |

\* Sensitivity, specificity, PPV and NPV are based on any positive PCR as the gold standard compared to IgM

# Supplementary Table 2

## Clinical Characteristics of Children who underwent ZIKV Laboratory Testing and Bayley-3 Evaluations (N=115)

| Gestational Age Infection | Gestational Age Birth | Microcephaly | SGA | Premature | Eye Exam | Hearing Exam | CNS Imaging | Bayley-3 Age | Cognitive Score | Language Score | Motor Score |
|---------------------------|-----------------------|--------------|-----|-----------|----------|--------------|-------------|--------------|-----------------|----------------|-------------|
| 20                        | 37                    | NO           | NO  | NO        | -        | -            | -           | 12           | 100             | 77             | 118         |
| 12                        | 34                    | NO           | NO  | YES       | NORMAL   | NORMAL       | ABNORMAL    | 14           | 95              | 71             | 97          |
| 15                        | 35                    | NO           | NO  | YES       | NORMAL   | ABNORMAL     | ABNORMAL    | 25           | 80              | 86             | 88          |
| 37                        | 37                    | NO           | NO  | NO        | NORMAL   | NORMAL       | NORMAL      | 25           | 90              | 89             | 91          |
| 20                        | 37                    | NO           | NO  | NO        | NORMAL   | NORMAL       | NORMAL      | 25           | 90              | 91             | 91          |
| 22                        | 38                    | NO           | NO  | NO        | NORMAL   | NORMAL       | NORMAL      | 12           | 100             | 89             | 97          |
| 22                        | 38                    | NO           | NO  | NO        | NORMAL   | NORMAL       | ABNORMAL    | 18           | 105             | 94             | 103         |
| 17                        | 39                    | NO           | NO  | NO        | NORMAL   | NORMAL       | NORMAL      | 25           | 110             | 94             | 97          |
| 17                        | 38                    | NO           | NO  | NO        | -        | -            | NORMAL      | 13           | 125             | 118            | 100         |
| 32                        | 39                    | NO           | NO  | NO        | NORMAL   | NORMAL       | NORMAL      | 19           | 100             | 109            | 97          |
| 26                        | 38                    | NO           | NO  | NO        | NORMAL   | NORMAL       | ABNORMAL    | 19           | 85              | 91             | 79          |
| 35                        | 41                    | NO           | NO  | NO        | NORMAL   | NORMAL       | NORMAL      | 24           | 100             | 94             | 107         |
| 12                        | 39                    | NO           | NO  | NO        | NORMAL   | NORMAL       | NORMAL      | 25           | 95              | 91             | 97          |
| 25                        | 37                    | NO           | YES | NO        | NORMAL   | NORMAL       | ABNORMAL    | 28           | 95              | 86             | 94          |
| 6                         | 39                    | NO           | NO  | NO        | NORMAL   | -            | NORMAL      | 18           | 70              | 62             | 94          |
| 12                        | 39                    | NO           | NO  | NO        | NORMAL   | -            | NORMAL      | 19           | 105             | 91             | 110         |
| 12                        | 38                    | NO           | NO  | NO        | NORMAL   | NORMAL       | ABNORMAL    | 13           | 95              | 91             | 103         |
| 17                        | 35                    | NO           | NO  | YES       | NORMAL   | NORMAL       | NORMAL      | 19           | 85              | 89             | 79          |
| 10                        | 40                    | NO           | NO  | NO        | NORMAL   | NORMAL       | NORMAL      | 25           | 100             | 77             | 100         |
| 17                        | 34                    | NO           | NO  | YES       | NORMAL   | ABNORMAL     | ABNORMAL    | 14           | 105             | 83             | 88          |
| 17                        | 34                    | NO           | NO  | YES       | NORMAL   | -            | NORMAL      | 14           | 100             | 91             | 97          |
| 16                        | 37                    | NO           | NO  | NO        | NORMAL   | -            | ABNORMAL    | 22           | 95              | 112            | 107         |
| 17                        | 38                    | NO           | NO  | NO        | NORMAL   | NORMAL       | NORMAL      | 29           | 90              | 89             | 88          |
| 12                        | 38                    | NO           | NO  | NO        | NORMAL   | NORMAL       | NORMAL      | 18           | 105             | 106            | 103         |
| 8                         | 38                    | NO           | NO  | NO        | NORMAL   | NORMAL       | NORMAL      | 25           | 85              | 86             | 91          |
| 11                        | 38                    | NO           | NO  | NO        | NORMAL   | NORMAL       | ABNORMAL    | 12           | 95              | 89             | 79          |

|    |    |     |     |     |        |          |          |    |     |     |     |
|----|----|-----|-----|-----|--------|----------|----------|----|-----|-----|-----|
| 14 | 39 | NO  | NO  | NO  | NORMAL | NORMAL   | ABNORMAL | 18 | 90  | 62  | 94  |
| 37 | 39 | NO  | NO  | NO  | NORMAL | NORMAL   | NORMAL   | 18 | 115 | 86  | 107 |
| 10 | 38 | YES | NO  | NO  | NORMAL | NORMAL   | ABNORMAL | 24 | 55  | 56  | 46  |
| 12 | 37 | NO  | NO  | NO  | -      | -        | NORMAL   | 9  | 105 | 112 | 118 |
| 35 | 40 | NO  | NO  | NO  | NORMAL | NORMAL   | NORMAL   | 24 | 90  | 79  | 91  |
| 11 | 38 | NO  | NO  | NO  | NORMAL | NORMAL   | NORMAL   | 26 | 115 | 115 | 110 |
| 20 | 34 | NO  | YES | YES | NORMAL | NORMAL   | NORMAL   | 32 | 110 | 91  | 88  |
| 19 | 38 | NO  | NO  | NO  | NORMAL | NORMAL   | ABNORMAL | 18 | 90  | 86  | 82  |
| 22 | 39 | NO  | NO  | NO  | NORMAL | NORMAL   | ABNORMAL | 12 | 95  | 94  | 103 |
| 16 | 38 | NO  | NO  | NO  | NORMAL | -        | NORMAL   | 20 | 90  | 83  | 79  |
| 30 | 39 | NO  | NO  | NO  | -      | NORMAL   | NORMAL   | 20 | 130 | 103 | 112 |
| 24 | 37 | NO  | NO  | NO  | NORMAL | NORMAL   | ABNORMAL | 19 | 100 | 79  | 107 |
| 27 | 35 | NO  | NO  | YES | NORMAL | NORMAL   | ABNORMAL | 26 | 85  | 65  | 76  |
| 16 | 37 | NO  | NO  | NO  | NORMAL | -        | -        | 12 | 95  | 100 | 110 |
| 5  | 40 | NO  | YES | NO  | -      | ABNORMAL | ABNORMAL | 12 | 120 | 91  | 103 |
| 11 | 38 | NO  | NO  | NO  | NORMAL | -        | ABNORMAL | 12 | 105 | 94  | 103 |
| 12 | 36 | NO  | NO  | YES | -      | -        | NORMAL   | 18 | 75  | 74  | 88  |
| 6  | 39 | NO  | NO  | NO  | NORMAL | NORMAL   | NORMAL   | 25 | 90  | 71  | 100 |
| 39 | 38 | NO  | NO  | NO  | NORMAL | NORMAL   | NORMAL   | 20 | 100 | 91  | 94  |
| 34 | 38 | NO  | NO  | NO  | NORMAL | NORMAL   | NORMAL   | 18 | 95  | 97  | 110 |
| 16 | 39 | NO  | YES | NO  | NORMAL | NORMAL   | ABNORMAL | 20 | 85  | 94  | 94  |
| 4  | 34 | NO  | NO  | YES | NORMAL | NORMAL   | NORMAL   | 24 | 65  | 47  | 76  |
| 22 | 41 | NO  | NO  | NO  | NORMAL | NORMAL   | NORMAL   | 12 | 120 | 97  | 110 |
| 12 | 38 | NO  | NO  | NO  | -      | -        | NORMAL   | 18 | 105 | 100 | 103 |
| 16 | 38 | NO  | NO  | NO  | NORMAL | -        | -        | 19 | 100 | 97  | 97  |
| 10 | 39 | YES | NO  | NO  | NORMAL | -        | ABNORMAL | 24 | 55  | 55  | 55  |
| 17 | 41 | NO  | NO  | NO  | NORMAL | NORMAL   | ABNORMAL | 12 | 115 | 86  | 94  |
| 14 | 39 | NO  | NO  | NO  | -      | NORMAL   | NORMAL   | 25 | 90  | 65  | 107 |
| 11 | 36 | NO  | NO  | YES | NORMAL | NORMAL   | NORMAL   | 13 | 95  | 77  | 97  |
| 29 | 38 | NO  | NO  | NO  | -      | -        | NORMAL   | 18 | 100 | 91  | 97  |
| 33 | 34 | NO  | NO  | YES | NORMAL | ABNORMAL | NORMAL   | 18 | 100 | 71  | 107 |
| 33 | 34 | NO  | NO  | YES | NORMAL | ABNORMAL | NORMAL   | 18 | 95  | 65  | 103 |
| 21 | 39 | NO  | NO  | NO  | NORMAL | NORMAL   | ABNORMAL | 25 | 95  | 89  | 97  |

|    |    |     |     |     |          |          |          |    |     |     |     |
|----|----|-----|-----|-----|----------|----------|----------|----|-----|-----|-----|
| 19 | 36 | NO  | NO  | YES | NORMAL   | NORMAL   | NORMAL   | 18 | 100 | 103 | 115 |
| 38 | 39 | NO  | NO  | NO  | NORMAL   | -        | ABNORMAL | 19 | 115 | 74  | 107 |
| 23 | 40 | NO  | YES | NO  | NORMAL   | NORMAL   | NORMAL   | 19 | 90  | 91  | 76  |
| 18 | 38 | NO  | NO  | NO  | NORMAL   | -        | ABNORMAL | 12 | 115 | 100 | 94  |
| 7  | 38 | NO  | NO  | NO  | NORMAL   | NORMAL   | NORMAL   | 14 | 120 | 91  | 110 |
| 20 | 38 | NO  | NO  | NO  | NORMAL   | NORMAL   | ABNORMAL | 13 | 105 | 89  | 85  |
| 35 | 40 | NO  | NO  | NO  | NORMAL   | NORMAL   | NORMAL   | 18 | 85  | 83  | 82  |
| 26 | 35 | NO  | NO  | YES | -        | ABNORMAL | -        | 28 | 100 | 91  | 94  |
| 32 | 41 | NO  | NO  | NO  | NORMAL   | NORMAL   | NORMAL   | 11 | 105 | 100 | 110 |
| 18 | 37 | NO  | NO  | NO  | NORMAL   | ABNORMAL | ABNORMAL | 28 | 95  | 77  | 88  |
| 12 | 38 | YES | NO  | NO  | NORMAL   | NORMAL   | ABNORMAL | 13 | 105 | 103 | 85  |
| 21 | 40 | NO  | NO  | NO  | NORMAL   | NORMAL   | NORMAL   | 25 | 85  | 65  | 88  |
| 8  | 36 | NO  | NO  | YES | NORMAL   | -        | NORMAL   | 17 | 110 | 94  | 107 |
| 27 | 39 | NO  | NO  | NO  | NORMAL   | NORMAL   | NORMAL   | 13 | 120 | 97  | 103 |
| 23 | 40 | NO  | NO  | NO  | NORMAL   | NORMAL   | NORMAL   | 18 | 85  | 91  | 85  |
| 18 | 37 | NO  | NO  | NO  | NORMAL   | NORMAL   | NORMAL   | 18 | 85  | 74  | 79  |
| 8  | 39 | YES | NO  | NO  | ABNORMAL | -        | ABNORMAL | 24 | 55  | 55  | 55  |
| 27 | 41 | NO  | NO  | NO  | NORMAL   | NORMAL   | NORMAL   | 18 | 105 | 100 | 107 |
| 32 | 40 | NO  | NO  | NO  | NORMAL   | NORMAL   | NORMAL   | 13 | 110 | 100 | 97  |
| 30 | 40 | NO  | NO  | NO  | NORMAL   | ABNORMAL | -        | 18 | 105 | 103 | 112 |
| 25 | 40 | NO  | NO  | NO  | NORMAL   | -        | NORMAL   | 18 | 95  | 106 | 110 |
| 26 | 40 | NO  | NO  | NO  | NORMAL   | NORMAL   | NORMAL   | 27 | 105 | 97  | 112 |
| 10 | 38 | NO  | NO  | NO  | NORMAL   | NORMAL   | NORMAL   | 20 | 105 | 100 | 110 |
| 5  | 38 | NO  | NO  | NO  | NORMAL   | NORMAL   | NORMAL   | 17 | 100 | 83  | 103 |
| 20 | 38 | NO  | NO  | NO  | NORMAL   | NORMAL   | ABNORMAL | 13 | 105 | 91  | 88  |
| 12 | 35 | NO  | YES | YES | NORMAL   | NORMAL   | NORMAL   | 14 | 80  | 71  | 70  |
| 13 | 40 | YES | YES | NO  | ABNORMAL | ABNORMAL | ABNORMAL | 24 | 55  | 55  | 55  |
| 31 | 37 | NO  | NO  | NO  | NORMAL   | -        | NORMAL   | 21 | 90  | 91  | 97  |
| 3  | 39 | NO  | NO  | NO  | -        | -        | -        | 22 | 90  | 89  | 97  |
| 7  | 38 | NO  | NO  | NO  | NORMAL   | NORMAL   | ABNORMAL | 13 | 105 | 79  | 97  |
| 22 | 41 | NO  | NO  | NO  | NORMAL   | NORMAL   | ABNORMAL | 25 | 90  | 79  | 88  |
| 22 | 39 | NO  | NO  | NO  | NORMAL   |          | NORMAL   | 14 | 110 | 83  | 100 |
| 10 | 40 | NO  | NO  | NO  | NORMAL   | NORMAL   | NORMAL   | 18 | 90  | 97  | 82  |

|    |    |     |     |     |          |          |          |    |     |     |     |
|----|----|-----|-----|-----|----------|----------|----------|----|-----|-----|-----|
| 8  | 39 | NO  | NO  | NO  | -        | NORMAL   | -        | 15 | 95  | 115 | 107 |
| 21 | 38 | NO  | NO  | NO  | ABNORMAL | NORMAL   | ABNORMAL | 26 | 100 | 91  | 97  |
| 23 | 39 | NO  | NO  | NO  | -        | -        | -        | 7  | 110 | 106 | 97  |
| 20 | 40 | NO  | NO  | NO  | NORMAL   | NORMAL   | NORMAL   | 12 | 120 | 77  | 112 |
| 33 | 39 | NO  | NO  | NO  | NORMAL   | NORMAL   | NORMAL   | 23 | 85  | 94  | 97  |
| 9  | 40 | YES | NO  | NO  | ABNORMAL | ABNORMAL | ABNORMAL | 24 | 55  | 55  | 55  |
| 27 | 40 | NO  | NO  | NO  | NORMAL   | NORMAL   | NORMAL   | 18 | 90  | 91  | 85  |
| 25 | 38 | NO  | NO  | NO  | NORMAL   | NORMAL   | NORMAL   | 28 | 120 | 91  | 91  |
| 30 | 31 | NO  | NO  | YES | NORMAL   | -        | NORMAL   | 25 | 85  | 76  | 77  |
| 35 | 38 | NO  | NO  | NO  | -        | -        | -        | 12 | 100 | 77  | 91  |
| 22 | 34 | YES | YES | YES | ABNORMAL | -        | ABNORMAL | 24 | 55  | 55  | 55  |
| 8  | 38 | NO  | NO  | NO  | NORMAL   | -        | NORMAL   | 27 | 85  | 80  | 88  |
| 15 | 38 | NO  | NO  | NO  | NORMAL   | NORMAL   | NORMAL   | 25 | 85  | 91  | 100 |
| 15 | 40 | YES | YES | NO  | NORMAL   | -        | NORMAL   | 19 | 100 | 89  | 103 |
| 15 | 41 | NO  | NO  | NO  | NORMAL   | ABNORMAL | NORMAL   | 22 | 95  | 97  | 94  |
| 7  | 39 | NO  | NO  | NO  | ABNORMAL | NORMAL   | NORMAL   | 12 | 115 | 83  | 103 |
| 29 | 40 | NO  | NO  | NO  | NORMAL   | NORMAL   | NORMAL   | 24 | 90  | 91  | 88  |
| 20 | 37 | NO  | NO  | NO  | NORMAL   | NORMAL   | NORMAL   | 16 | 105 | 89  | 103 |
| 4  | 40 | NO  | NO  | NO  | NORMAL   | NORMAL   | NORMAL   | 18 | 105 | 62  | 103 |
| 1  | 38 | NO  | NO  | NO  | NORMAL   | NORMAL   | NORMAL   | 24 | 95  | 86  | 97  |
| 28 | 39 | NO  | YES | NO  | NORMAL   | NORMAL   | NORMAL   | 13 | 115 | 106 | 100 |
| 12 | 39 | NO  | NO  | NO  | -        | NORMAL   | -        | 18 | 105 | 79  | 103 |
| 24 | 40 | NO  | NO  | NO  | NORMAL   | -        | -        | 20 | 85  | 103 | 91  |

SGA: Small for gestational age; CNS: Central nervous system

OBS: Children who only underwent Hammersmith Infant Neurologic Examination (HINES) are not included (N=14)