Supplementary materials for

Development of Global Cortical Networks in Early Infancy

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Supplementary Figure 1. The power spectra of oxy-Hb signals. We calculated these spectra from averaged oxy-Hb signals without using the band-pass filter. There are peaks at cardiac rates over 1.5 Hz (A). The low-frequency components less than 1 Hz show 1/f curves (slope of the fitted line: –1.0) in all the infant groups (B). High sampling rate (10 Hz) and appropriate filtering (0.005 Hz to 1.0 Hz) helped us focus on signals reflecting neuronal activity.
Supplementary Figure 2. All the connectivity in the neonates. The red lines show correlations that were higher than 0.5 (averaged across all infants). The correlations between one of the 94 measurement channels and other channels are shown according to the arrangement illustrated above the figure.
**Supplementary Figure 3.** All the connectivity in the 3-month-old infants. The red lines show correlations that were higher than 0.5 (averaged across all infants).
Supplementary Figure 4. All the connectivity in the 6-month-old infants. The red lines show correlations that were higher than 0.5 (averaged across all infants).
**Supplementary Figure 5.** Clusters divided according to the temporal correlations.

Spatial configurations of neonates (A), 3-month-old infants (B), and 6-month-old infants (C) are shown. These analyses were applied to the band-passed filter data with a narrower window (from 0.009 Hz to 0.08 Hz).
Supplementary Figure 6. The magnitudes of squared coherence between homologous regions. We calculated the squared coherence of oxy-Hb signals between 17 pairs, as shown in Fig. 3A. We applied Welch's averaged, modified periodogram method (using a 1024 point Fourier transform, Hanning window, and overlap of 512 points) to estimate the cross spectral density and the power spectral density. The magnitudes of squared coherence were calculated from them. The 17 values for each frequency were averaged in each infant. The red, green, and blue lines indicate the mean values in the neonates, 3-month-old infants, and 6-month-old infants, respectively (error bar: the standard error). Data below 1 Hz were presented in each infant group. The abscissa and ordinate show the frequency in a log scale and the magnitude of squared coherence, respectively.