Figure Captions:

Figure. S1 Functionally meaningful ICA components that were not matched to any of the 9 adult networks.

Figure. S2 ICA components showing apparent artifacts.

Figure. S3 Comparisons of functional connectivity measurements between different preprocessing methods-Method 1: Scrubbing with the threshold of frame-wise displacement <0.5 mm or signal intensity change <0.5% together with global signal regression (0.5mm Scrubbing+GSR, as reported in the main results); Method 2: Scrubbing with the threshold of frame-wise displacement <0.2 mm and signal intensity change <0.3% together with global signal regression (0.2mm Scrubbing+GSR); Method 3: Scrubbing with the threshold of frame-wise displacement <0.5 mm or signal intensity change <0.5% without global signal regression (0.5mm Scrubbing). a). Regional level functional connectivity comparisons. The first column shows the relationship of 528 regional connectivity values between Method 1 (0.5mm Scrubbing+GSR) and Method 2 (0.2mm Scrubbing+GSR) while the second column shows the relationship of 528 regional connectivity values between Method 1 (0.5mm Scrubbing+GSR) and Method 3 (0.5mm Scrubbing). b). Network level functional connectivity comparisons. The first column shows the relationship of 45 network-level connectivity values between Method 1(0.5mm Scrubbing+GSR) and Method 2 (0.2mm Scrubbing+GSR) while the second column shows the relationship of 45 network-level connectivity values between Method 1 (0.5mm Scrubbing+GSR) and Method 3 (0.5mm Scrubbing).

Figure. S4 Comparisons of the growth trajectories of the 7 networks between different preprocessing methods-Method 1: Scrubbing with the threshold of frame-wise displacement <0.5 mm or signal intensity change <0.5% together with global signal regression (0.5mm Scrubbing+GSR, as reported in the main results); Method 2: Scrubbing with the threshold of frame-wise displacement <0.2 mm and signal intensity change <0.3% together with global signal regression (0.2mm Scrubbing+GSR); Method 3: Scrubbing with the threshold of frame-wise displacement <0.5 mm or signal intensity change <0.5% without global signal regression (0.5mm Scrubbing).

Table. S1 Comparisons of motion parameters through "scrubbing" between different age groups.

	Yr0 (M±SD)	**Yr1 (M±SD)**	**Yr2 (M±SD)**	**P(Yr0, Yr1)**	**P(Yr1, Yr2)**	**P(Yr0, Yr2)**
FD_before	0.23±0.22	0.12±0.09	0.14±0.14	6.20e-7	0.32	4.49e-4
FD_after	0.13±0.04	0.10±0.03	0.11±0.05	1.77e-9	0.05	4.60e-3
N (Removed)	6.01±9.70	2.74±7.70	2.85±8.37	4.01e-3	0.92	0.01

FD_before: mean framewise displacement (FD) before scrubbing; FD_after: mean framewise displacement (FD) after scrubbing; N(removed): number of frames removed during the scrubbing process.

Table. S2 Comparisons of motion parameters through "scrubbing" between sexes.

	Yr0			**Yr1**			**Yr2**		
	Male (M±SD)	**Female (M±SD)**	**P**	**Male (M±SD)**	**Female (M±SD)**	**P**	**Male (M±SD)**	**Female (M±SD)**	**P**
FD_before	0.22±0.24	0.25±0.20	0.52	0.12±0.10	0.12±0.09	0.39	0.14±0.13	0.14±0.15	0.99
FD_after	0.12±0.05	0.13±0.04	0.40	0.10±0.14	0.10±0.03	0.50	0.11±0.05	0.11±0.06	0.64
N (Removed)	4.86±9.26	7.16±10.07	0.21	2.77±8.03	2.71±7.36	0.71	2.76±7.43	2.95±9.51	0.92

FD_before: mean framewise displacement (FD) before scrubbing; FD_after: mean framewise displacement (FD) after scrubbing; N(removed): number of frames removed during the scrubbing process.

Table. S3 Comparisons of detected significant age-dependent changes/gender effects in network-level functional connectivity among three different preprocessing methods.

	Significant Functional Connectivity Decreases		
	0.5mm Scrubbing+GSR	**0.2mm Scrubbing+GSR**	**0.5mm Scrubbing**
Overlapping Connections	Medial Visual--Occipital Pole Medial Visual--Lateral Visual Medial Visual--Auditory Medial Visual--FPN R Medial Visual--FPN L Occipital Pole--Sensorimotor Lateral Visual--Default Lateral Visual--Salience Default--Sensorimotor Default--Salience Sensorimotor--Auditory Sensorimotor--FPN R Salience--FPN L	Medial Visual--Occipital Pole Medial Visual--Lateral Visual Medial Visual--Auditory Medial Visual--FPN R Medial Visual--FPN L Occipital Pole--Sensorimotor Lateral Visual--Default Lateral Visual--Salience Default--Sensorimotor Default--Salience Sensorimotor--Auditory Sensorimotor--FPN R Salience--FPN L	Medial Visual--Occipital Pole Medial Visual--Lateral Visual Medial Visual--Auditory Medial Visual--FPN R Medial Visual--FPN L Occipital Pole--Sensorimotor Lateral Visual--Default Lateral Visual--Salience Default--Sensorimotor Default--Salience Sensorimotor--Auditory Sensorimotor--FPN R Salience--FPN L
Non-Overlapping Connections	Occipital Pole--Auditory	Medial Visual--Sensorimotor Sensorimotor--Salience Salience--FPN R	Occipital Pole--Lateral Visual Occipital Pole--Auditory Sensorimotor--Salience Salience--FPN R
	Significant Functional Connectivity Increases		
Overlapping Connections	Lateral Visual--FPN L Auditory--FPN R Auditory--FPN L Default--FPN R FPN R--FPN L	Lateral Visual--FPN L Auditory--FPN R Auditory--FPN L Default--FPN R FPN R--FPN L	Lateral Visual--FPN L Auditory--FPN R Auditory--FPN L Default--FPN R FPN R--FPN L
Non-Overlapping Connections			Auditory--Salience Medial Visual--Default Medial Visual--Salience Lateral Visual--FPN R Sensorimotor--Salience Default-FPN L
	Sex Effects		
	FPN R--FPN L Male Growth Rate: 0.000269/day Female Growth Rate: 0.000163/day P<1e-4	FPN R--FPN L Male Growth Rate: 0.000254/day Female Growth Rate: 0.000173/day P=0.0171	FPN R--FPN L Male Growth Rate: 0.000319/day Female Growth Rate: 0.000221/day P=0.0214

Method 1: Scrubbing with the threshold of frame-wise displacement <0.5 mm or signal intensity change <0.5% together with global signal regression (0.5mm Scrubbing+GSR, as reported in the main results); Method 2: Scrubbing with the threshold of frame-wise displacement <0.2 mm and signal intensity change <0.3% together with global signal regression (0.2mm Scrubbing+GSR); Method 3: Scrubbing with the threshold of frame-wise displacement <0.5 mm or signal intensity change <0.5% without global signal regression (0.5mm Scrubbing). Overlapping connections represent those that were consistently detected to be significant by all three methods while non-overlapping connections were those detected by only one or two methods. For sex effects, the male/female growth rate as well as the p-values for the Age*Gender interaction term were listed for each method.

Figure. S1
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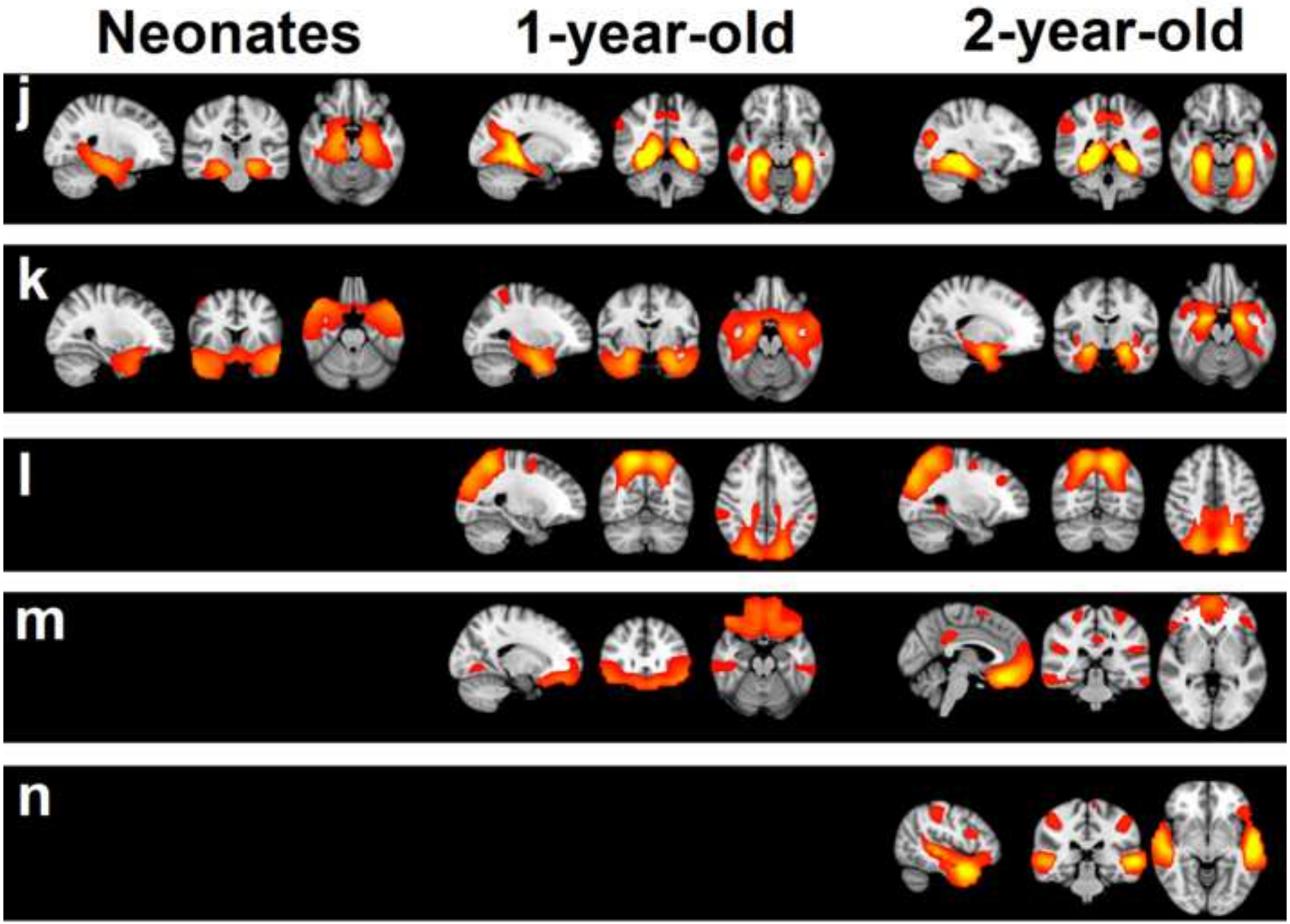

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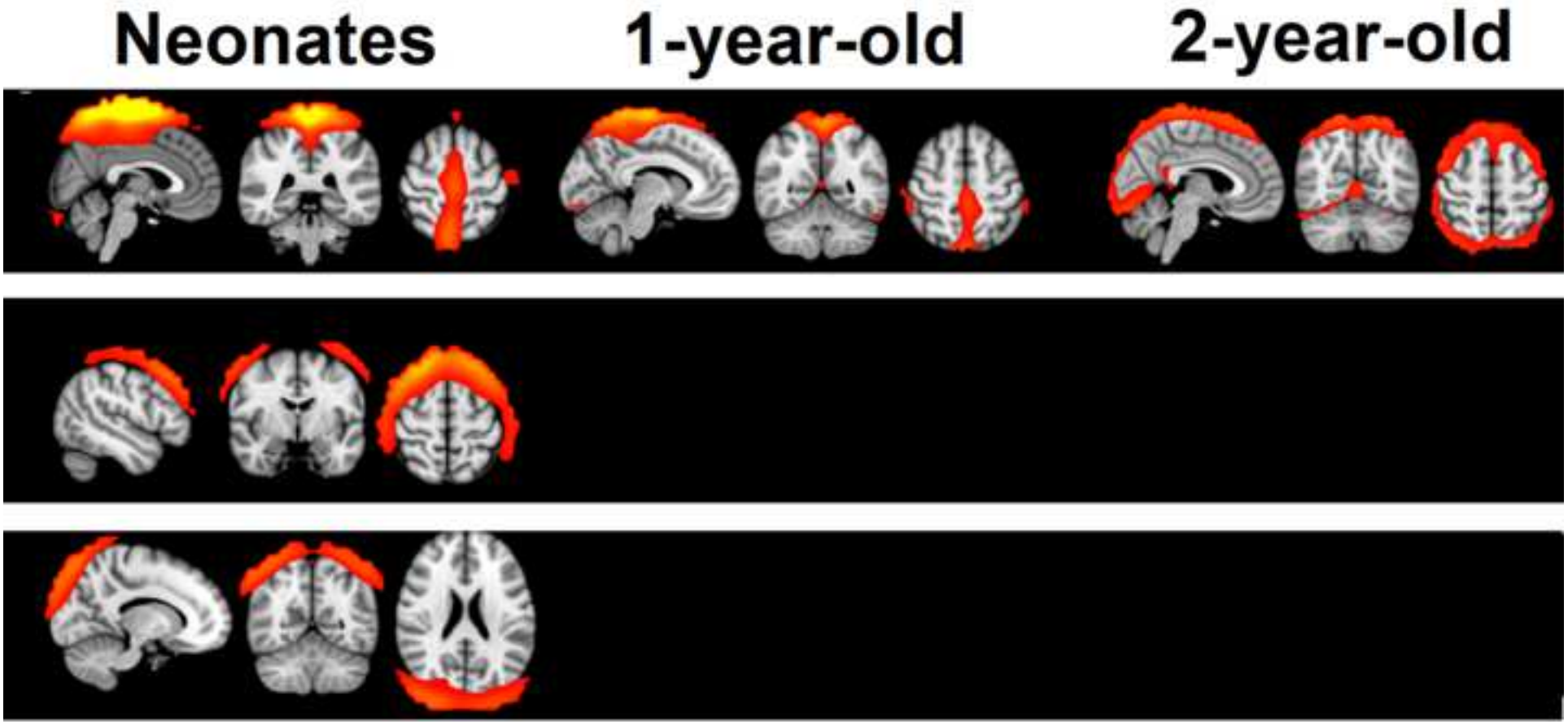

Figure. S3

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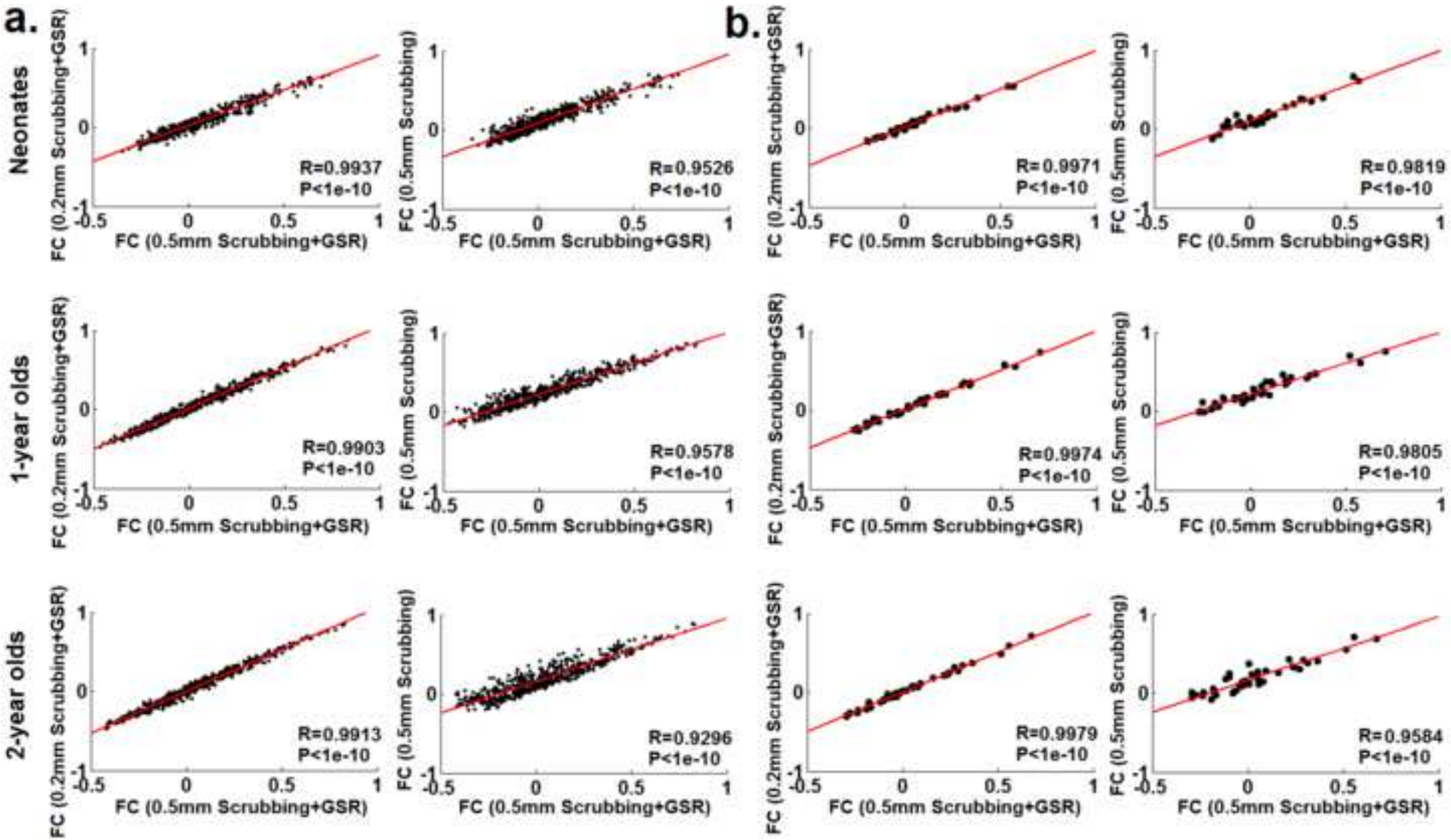

Figure. S4

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