Supplementary Materials

Time-resolved hemodynamic responses to sentence-level speech perception, production, and self-monitoring

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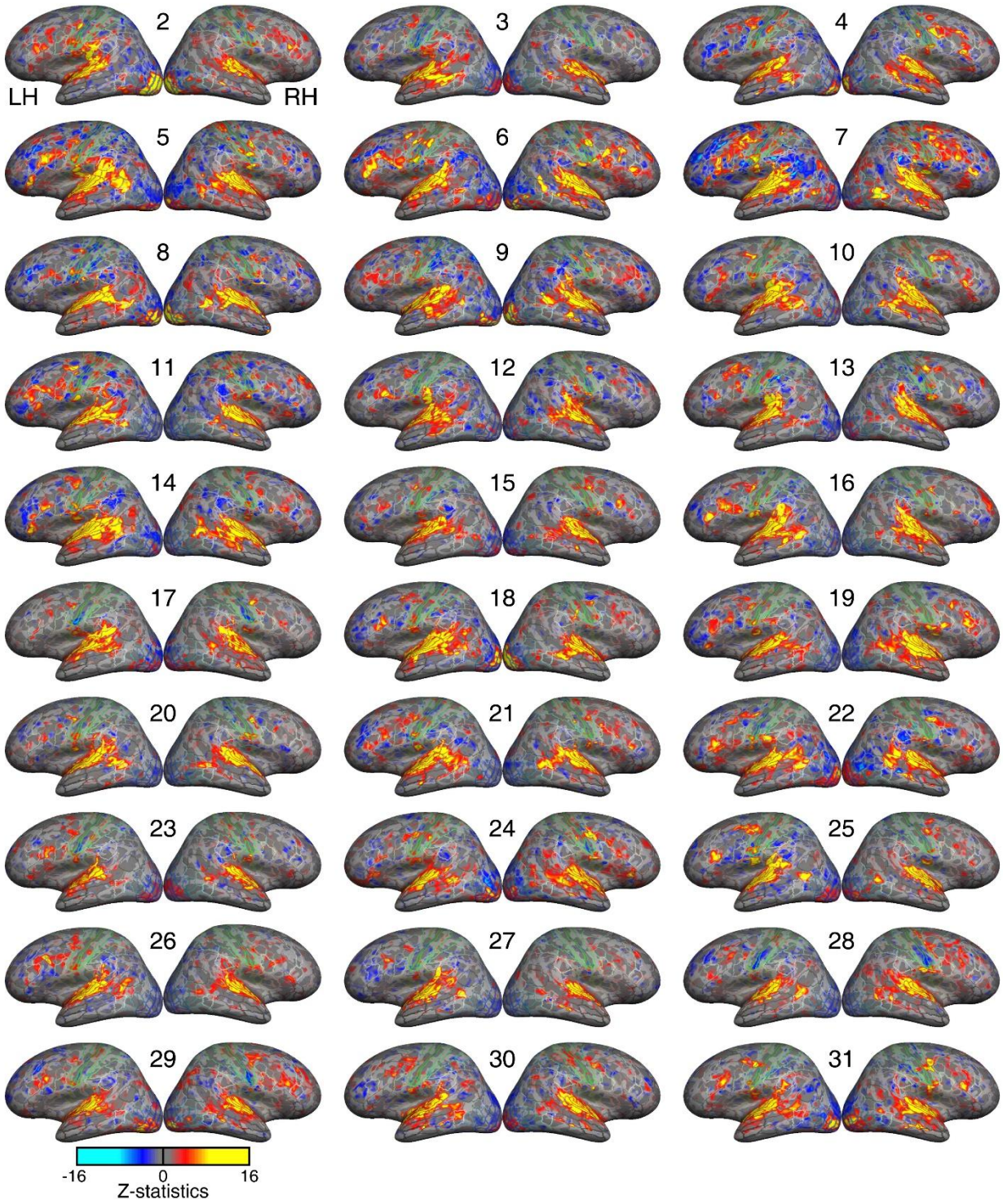
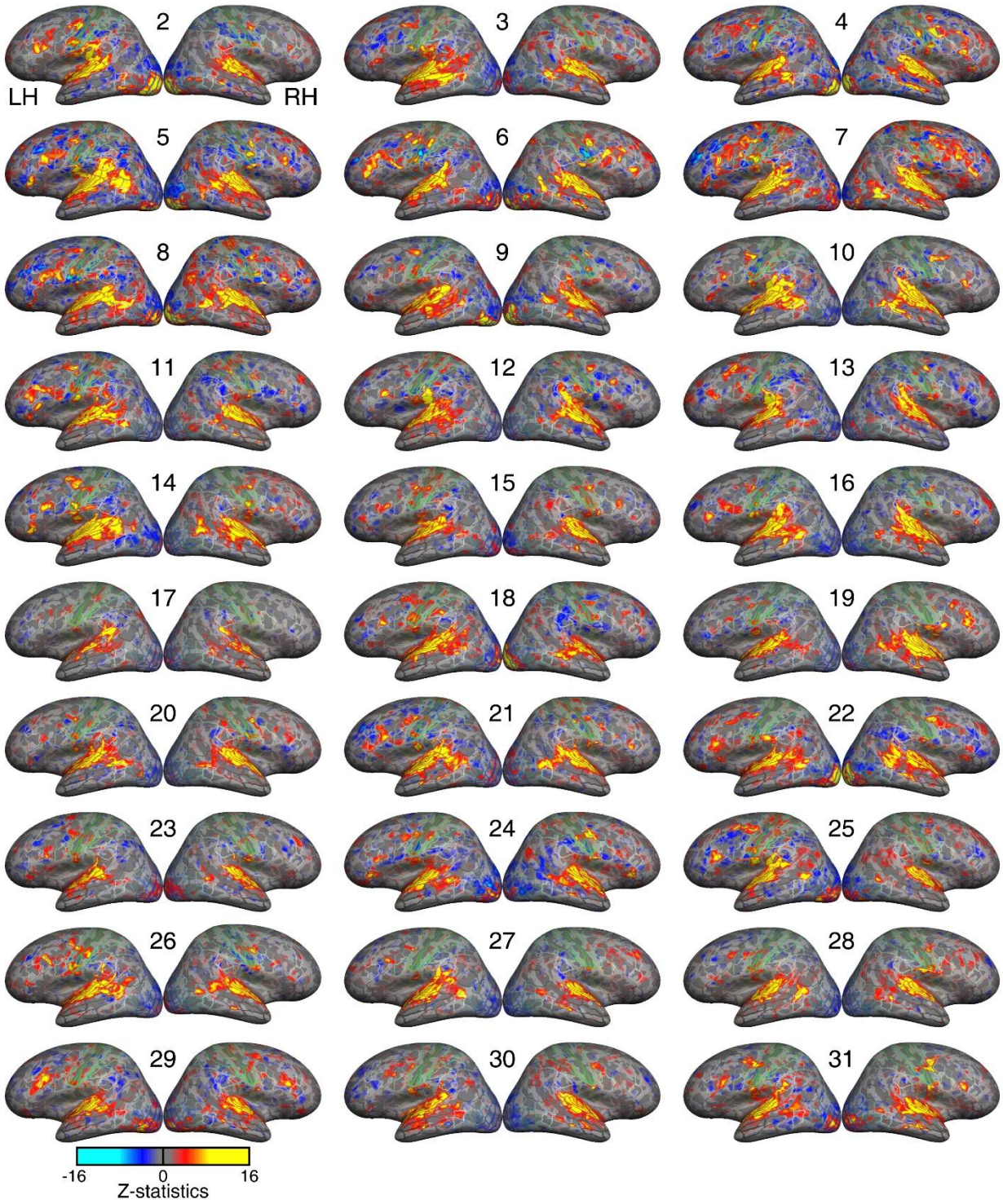
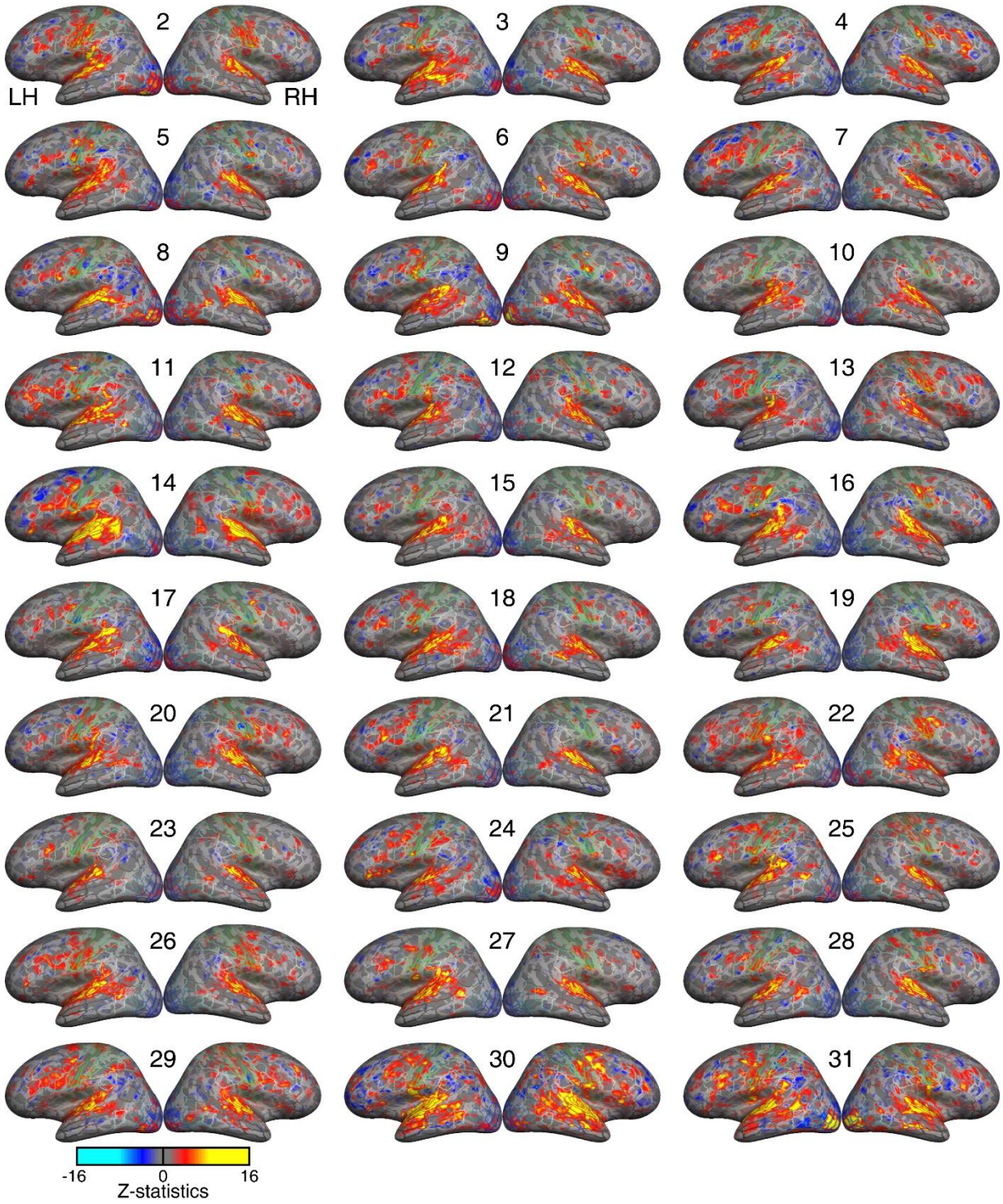


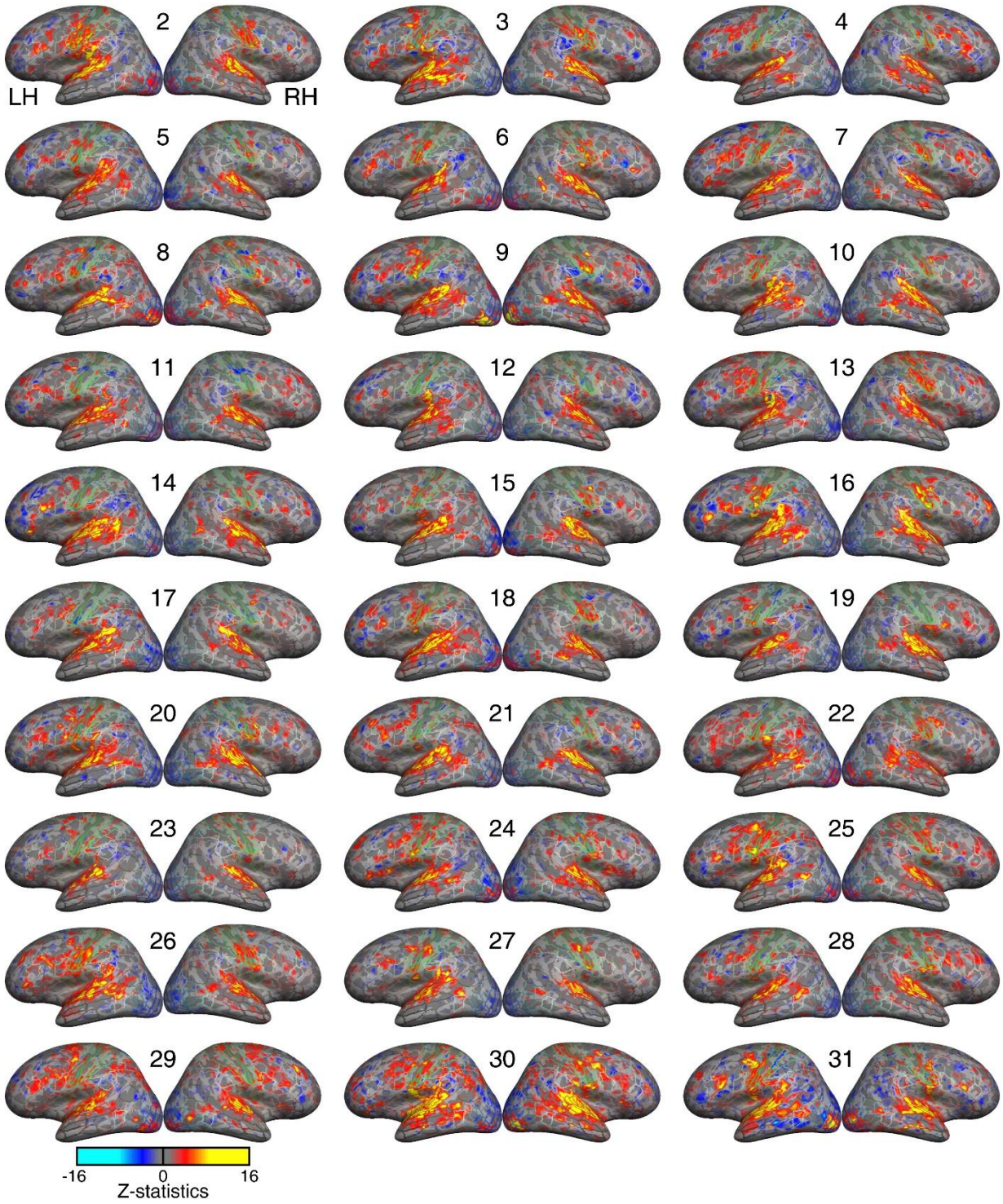
Supplementary Figure 1. Individual spatial maps (Subjects 2-31) of the STC IC in Scan 1 of the listening task. See Subject 1 in Fig. 3A. LH: left hemisphere; RH: right hemisphere.



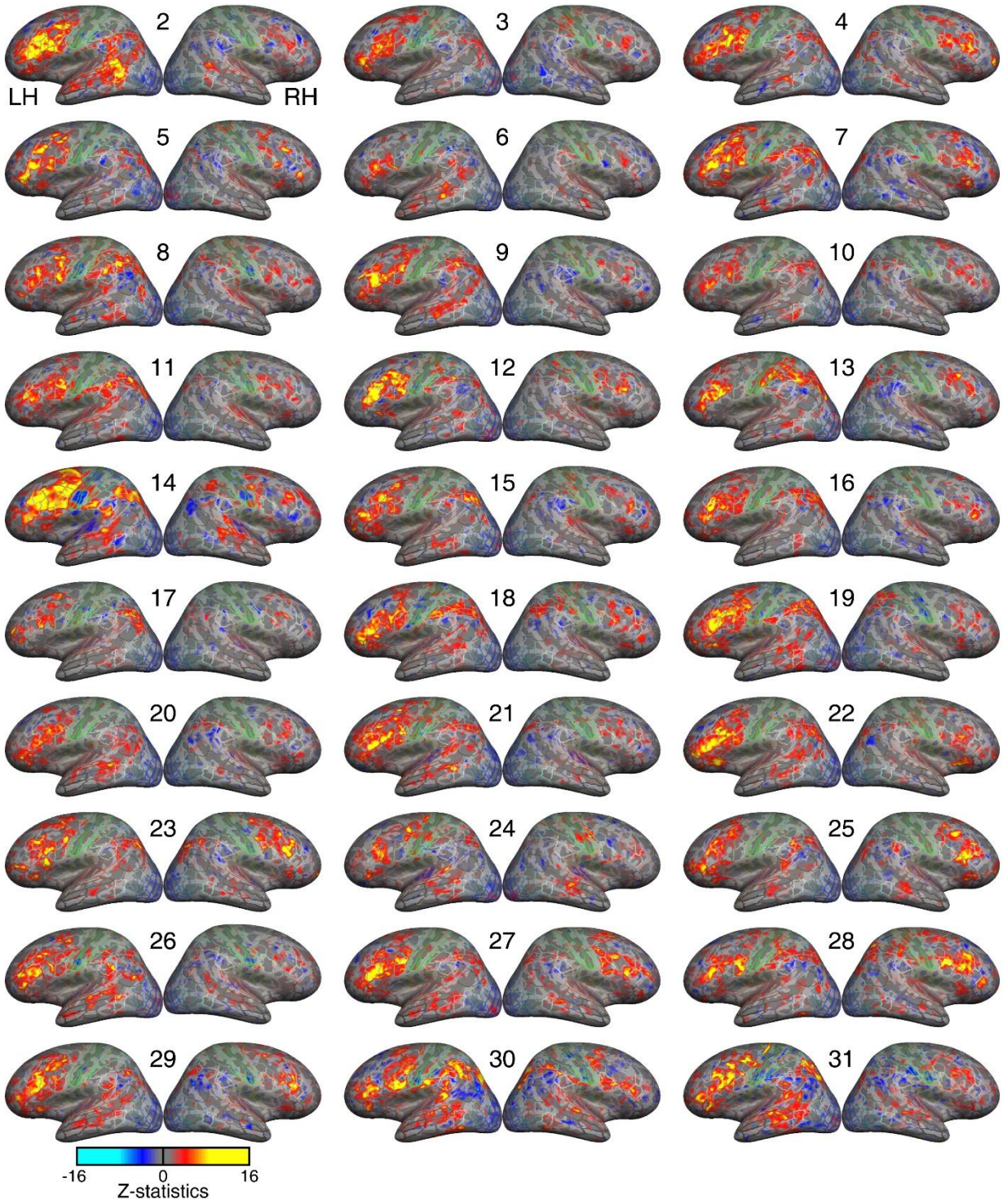
Supplementary Figure 2. Individual spatial maps (Subjects 2-31) of the STC IC in Scan 2 of the listening task. See Subject 1 in Fig. 3A. LH: left hemisphere; RH: right hemisphere.



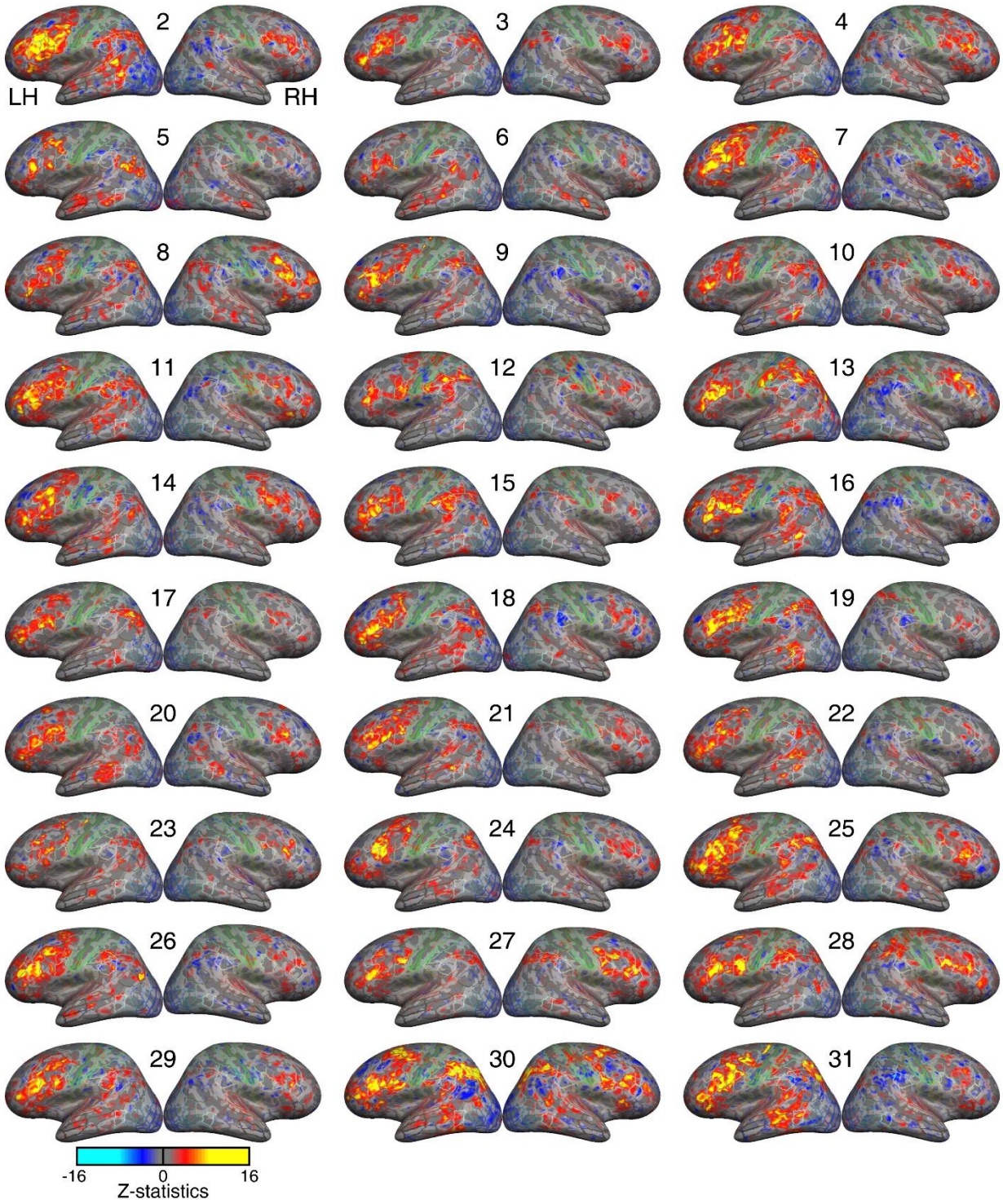
Supplementary Figure 3. Individual spatial maps (Subjects 2-31) of the STC IC in Scan 1 of the listening-reciting task. See Subject 1 in Fig. 4A. LH: left hemisphere; RH: right hemisphere.



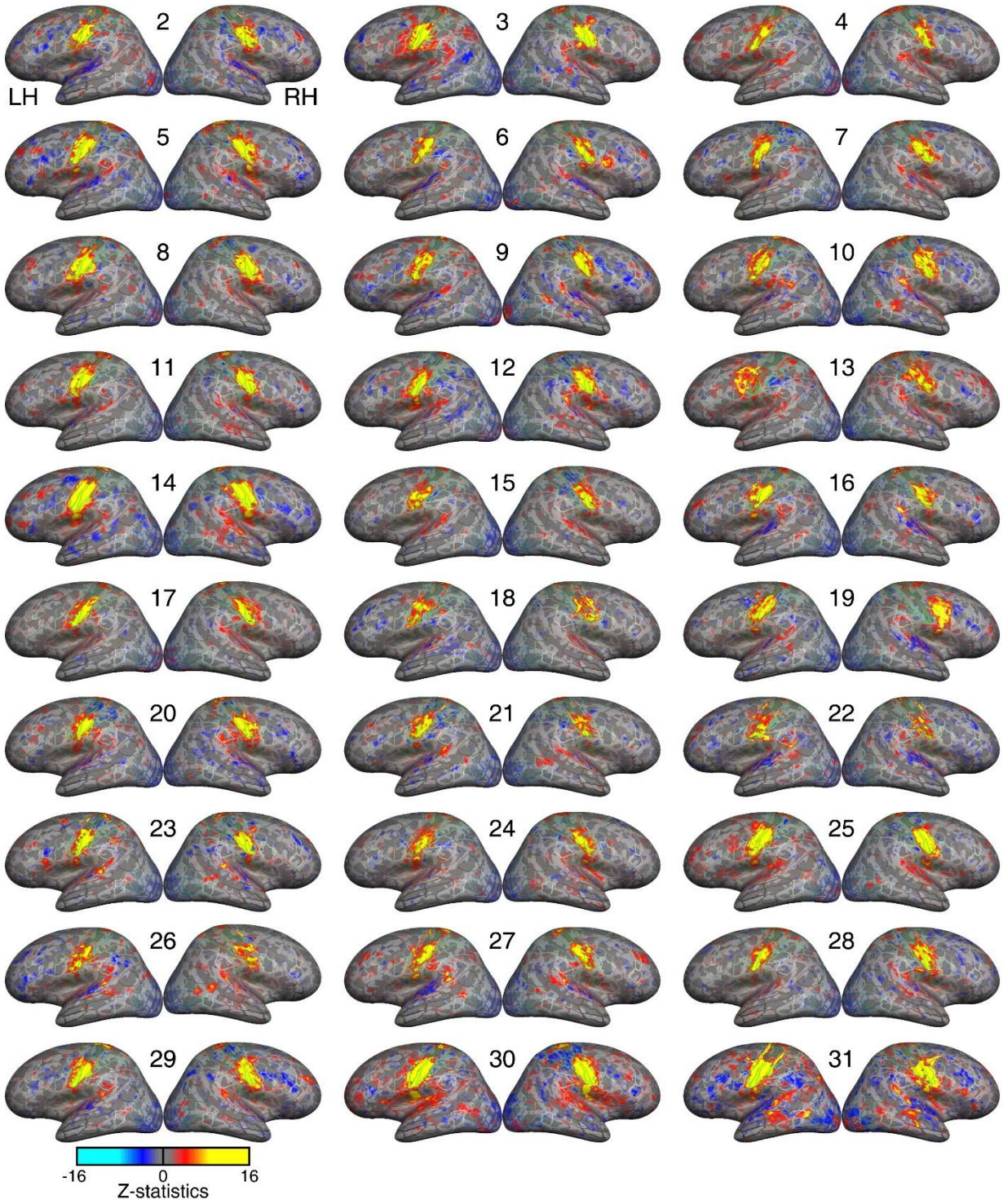
Supplementary Figure 4. Individual spatial maps (Subjects 2-31) of the STC IC in Scan 2 of the listening-reciting task. See Subject 1 in Fig. 4A. LH: left hemisphere; RH: right hemisphere.



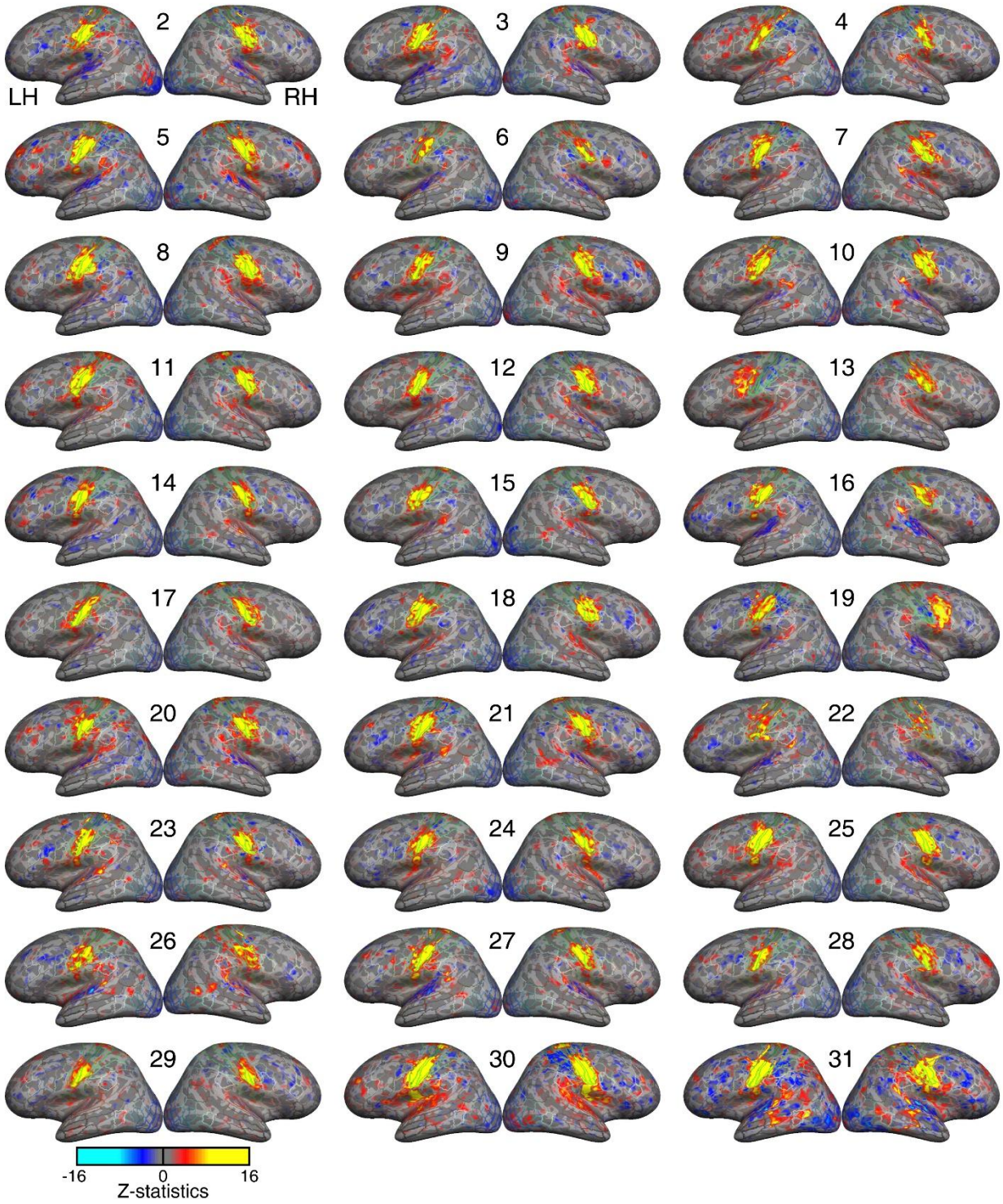
Supplementary Figure 5. Individual spatial maps (Subjects 2-31) of the IFG IC in Scan 1 of the listening-reciting task. See Subject 1 in Fig. 5A. LH: left hemisphere; RH: right hemisphere.



Supplementary Figure 6. Individual spatial maps (Subjects 2-31) of the IFG IC in Scan 2 of the listening-reciting task. See Subject 1 in Fig. 5A. LH: left hemisphere; RH: right hemisphere.



Supplementary Figure 7. Individual spatial maps (Subjects 2-31) of the SMC IC in Scan 1 of the listening-reciting task. See Subject 1 in Fig. 6A. LH: left hemisphere; RH: right hemisphere.



Supplementary Figure 8. Individual spatial maps (Subjects 2-31) of the SMC IC in Scan 2 of the listening-reciting task. See Subject 1 in Fig. 6A. LH: left hemisphere; RH: right hemisphere.

Supplementary Table 1. Correlation coefficients between the IC spatial maps of Scan 1 and Scan 2. For each hemisphere of each subject, a correlation coefficient is computed by the function *Corr* (Scan 1 map, Scan 2 map) in MATLAB. LH: left hemisphere; RH: right hemisphere. Bold numbers indicate low correlation ($r < 0.2$).

Task/IC	Listening: STC IC maps in Fig. 3A (Subject 1); Supplementary Figures 1 and 2 (Subjects 2-31)		Listening-reciting: STC IC maps in Fig. 4A (Subject 1); Supplementary Figures 3 and 4 (Subjects 2-31)		Listening-reciting: IFG IC maps in Fig. 5A (Subject 1); Supplementary Figures 5 and 6 (Subjects 2-31)		Listening-reciting: SMC IC maps in Fig. 6A (Subject 1); Supplementary Figures 7 and 8 (Subjects 2-31)	
Subject	LH	RH	LH	RH	LH	RH	LH	RH
1	0.8955	0.884	0.8647	0.8778	0.6005	0.494	0.8224	0.8661
2	0.9144	0.8823	0.8523	0.8284	0.7844	0.4701	0.8379	0.8005
3	0.8562	0.7828	0.8443	0.7548	0.6155	0.2257	0.8345	0.8561
4	0.8613	0.8829	0.8432	0.8187	0.6988	0.5427	0.7722	0.7582
5	0.8708	0.8681	0.7688	0.7439	0.2699	**0.0745**	0.8885	0.8932
6	0.89	0.906	0.849	0.8602	0.5294	0.2997	0.7203	0.7488
7	0.9011	0.9152	0.7817	0.7462	0.7194	0.6491	0.8053	0.7755
8	0.8972	0.9183	0.847	0.858	0.4652	**0.1731**	0.8652	0.854
9	0.802	0.8817	0.8328	0.8169	0.7374	0.3348	0.6062	0.6921
10	0.8701	0.893	0.7946	0.7688	0.6446	0.4994	0.8126	0.8211
11	0.9087	0.8715	0.8299	0.7829	0.6829	0.3254	0.8075	0.8342
12	0.7956	0.8057	0.5712	0.613	0.3843	**0.1565**	0.6978	0.791
13	0.8871	0.8344	0.7228	0.7171	0.7596	0.5322	0.455	0.5934
14	0.9241	0.8533	0.7917	0.7175	0.4106	0.2546	0.725	0.7243
15	0.8666	0.8674	0.8201	0.8317	0.4756	0.2462	0.7262	0.7654
16	0.9013	0.9016	0.8743	0.8849	0.6769	0.3384	0.8314	0.809
17	0.7186	0.6618	0.8605	0.8125	0.5139	**0.1185**	0.8365	0.8514
18	0.8515	0.791	0.8189	0.7703	0.6953	0.5058	0.6386	0.6077
19	0.8999	0.9369	0.8789	0.8849	0.7652	0.4843	0.7459	0.7653
20	0.8873	0.8895	0.8179	0.8417	0.7009	0.3102	0.7672	0.8102
21	0.894	0.8954	0.8377	0.8251	0.7592	0.4688	0.7531	0.7314
22	0.8815	0.8475	0.7885	0.7898	0.6398	0.3137	0.7916	0.7439
23	0.8518	0.8356	0.7768	0.7768	0.6947	0.6258	0.8927	0.8797
24	0.8598	0.8135	0.7508	0.7647	0.483	**0.1449**	0.6212	0.6639
25	0.8872	0.8853	0.8275	0.7996	0.7097	0.5324	0.8028	0.8025
26	0.8617	0.7499	0.8127	0.7067	0.6164	0.3632	0.7384	0.7448
27	0.905	0.852	0.8262	0.7469	0.6463	0.6114	0.8142	0.7873
28	0.8339	0.8817	0.7197	0.7559	0.6478	0.661	0.6762	0.7494
29	0.8634	0.8423	0.8218	0.812	0.6963	0.4575	0.662	0.7356
30	0.8473	0.8682	0.8483	0.8866	0.6079	0.4419	0.8782	0.869
31	0.8916	0.8663	0.7963	0.7961	0.7698	0.4144	0.896	0.8941

Supplementary Table 2. Correlation coefficients between single-subject maps and the group-average map of the STC IC cluster for Scan 1 and Scan 2 of the listening task. For each hemisphere in each subject, a correlation coefficient is computed by the function *Corr* (Single-subject map, Group-average map) in MATLAB. LH: left hemisphere; RH: right hemisphere. Bold numbers indicate low correlation ($r < 0.2$).

Scan	Scan 1: Subject 1 (Fig. 3A) and Subjects 2-31 (Suppl. Fig. 1) vs. Group-average (Fig. 3B)		Scan 2: Subject 1 (Fig. 3A) and Subjects 2-31 (Suppl. Fig. 2) vs. Group-average (Fig. 3B)	
Subject	LH	RH	LH	RH
1	0.7699	0.7559	0.7696	0.7754
2	0.686	0.6869	0.7362	0.7585
3	0.6467	0.6693	0.7446	0.7748
4	0.7163	0.7594	0.712	0.7554
5	0.7935	0.8186	0.7833	0.8125
6	0.7286	0.7667	0.7219	0.7707
7	0.8014	0.7583	0.8111	0.7572
8	0.7696	0.7441	0.7732	0.7669
9	0.6967	0.7426	0.7019	0.7467
10	0.7425	0.7316	0.7738	0.7509
11	0.6824	0.7045	0.6984	0.7258
12	0.6886	0.7039	0.7321	0.7457
13	0.6304	0.7225	0.6004	0.6526
14	0.8146	0.7535	0.8084	0.7571
15	0.7666	0.788	0.7797	0.7965
16	0.7614	0.7878	0.7808	0.7857
17	0.6839	0.6943	0.5062	0.5731
18	0.7922	0.6989	0.7359	0.5705
19	0.7509	0.8361	0.7463	0.8492
20	0.7882	0.78	0.7897	0.7836
21	0.8048	0.8348	0.814	0.8393
22	0.7424	0.6975	0.6939	0.6434
23	0.6764	0.726	0.6754	0.711
24	0.7246	0.7201	0.7403	0.6998
25	0.7712	0.7724	0.7197	0.7461
26	0.784	0.7646	0.7778	0.7393
27	0.7456	0.7565	0.7565	0.7551
28	0.7435	0.7605	0.774	0.7741
29	0.7383	0.7226	0.7241	0.722
30	0.7046	0.7599	0.6934	0.7339
31	0.7648	0.7235	0.7878	0.7287

Supplementary Table 3. Correlation coefficients between single-subject maps and the group-average map of the STC IC cluster for Scan 1 and Scan 2 of the listening-reciting task. For each hemisphere in each subject, a correlation coefficient is computed by the function *Corr* (Single-subject map, Group-average map) in MATLAB. LH: left hemisphere; RH: right hemisphere. Bold numbers indicate low correlation ($r < 0.2$).

Scan	Scan 1: Subject 1 (Fig. 4A) and Subjects 2-31 (Suppl. Fig. 3) vs. Group-average (Fig. 4B)		Scan 2: Subject 1 (Fig. 4A) and Subjects 2-31 (Suppl. Fig. 4) vs. Group-average (Fig. 4B)	
Subject	LH	RH	LH	RH
1	0.724	0.7153	0.7407	0.7363
2	0.6718	0.6623	0.7167	0.7396
3	0.6932	0.7142	0.6852	0.7028
4	0.666	0.6854	0.6326	0.6628
5	0.7087	0.7157	0.6724	0.6909
6	0.6608	0.7158	0.6428	0.7058
7	0.6442	0.6474	0.6774	0.6449
8	0.6699	0.696	0.6648	0.6855
9	0.6197	0.6554	0.64	0.6604
10	0.6909	0.6654	0.7119	0.6975
11	0.626	0.6435	0.6137	0.5714
12	0.5701	0.5904	0.5808	0.6011
13	0.4976	0.5063	0.5867	0.5853
14	0.7815	0.7317	0.7381	0.6712
15	0.6907	0.7032	0.6986	0.7461
16	0.6991	0.7278	0.7231	0.7523
17	0.6217	0.6426	0.6326	0.6163
18	0.7022	0.6462	0.7386	0.6883
19	0.7297	0.7655	0.7007	0.749
20	0.6609	0.7001	0.6924	0.7036
21	0.7178	0.7338	0.7179	0.7551
22	0.6179	0.5772	0.5408	0.4699
23	0.5975	0.6296	0.5873	0.6528
24	0.561	0.5992	0.648	0.6779
25	0.6719	0.6611	0.6536	0.6572
26	0.7288	0.6468	0.6881	0.6332
27	0.7154	0.7052	0.6493	0.6372
28	0.6637	0.691	0.6283	0.678
29	0.6777	0.6866	0.6238	0.6395
30	0.7283	0.7626	0.7035	0.7599
31	0.661	0.6617	0.6961	0.6644

Supplementary Table 4. Correlation coefficients between single-subject maps and the group-average map of the IFG IC cluster for Scan 1 and Scan 2 of the listening-reciting task. For each hemisphere in each subject, a correlation coefficient is computed by the function *Corr* (Single-subject map, Group-average map) in MATLAB. LH: left hemisphere; RH: right hemisphere. Bold numbers indicate low correlation ($r < 0.2$).

Scan	Scan 1: Subject 1 (Fig. 5A) and Subjects 2-31 (Suppl. Fig. 5) vs. Group-average (Fig. 5B)		Scan 2: Subject 1 (Fig. 5A) and Subjects 2-31 (Suppl. Fig. 6) vs. Group-average (Fig. 5B)	
Subject	LH	RH	LH	RH
1	0.5187	0.4959	0.4814	0.4759
2	0.6891	0.4069	0.7053	0.5136
3	0.5036	0.3229	0.5794	0.3911
4	0.5848	0.4768	0.6224	0.4995
5	0.5588	0.341	0.2228	**0.0514**
6	0.2653	**0.1717**	0.2714	**0.1583**
7	0.6096	0.4939	0.628	0.4967
8	0.5469	0.3313	0.5596	0.465
9	0.6698	0.4408	0.576	0.2892
10	0.5292	0.3862	0.5596	0.4677
11	0.5774	0.4335	0.6305	0.4564
12	0.543	0.3619	0.3591	0.2429
13	0.4706	0.4205	0.4824	0.4699
14	0.6832	0.3392	0.6005	0.548
15	0.6053	0.4425	0.5347	0.3184
16	0.6193	0.3771	0.6288	0.4477
17	0.4055	**0.1355**	0.559	0.313
18	0.6251	0.5131	0.6001	0.4355
19	0.7079	0.3555	0.612	0.3619
20	0.5347	0.3719	0.5403	0.3353
21	0.6736	0.4754	0.613	0.469
22	0.6514	0.4604	0.5197	0.2887
23	0.5969	0.5553	0.5098	0.4519
24	0.4087	**0.1982**	0.5965	0.4353
25	0.534	0.4125	0.7163	0.5266
26	0.563	0.3184	0.5869	0.4708
27	0.6674	0.504	0.5698	0.534
28	0.4989	0.5617	0.5484	0.5158
29	0.6328	0.5052	0.6335	0.3595
30	0.5076	0.3153	0.6397	0.5182
31	0.5553	0.4042	0.5893	0.3382

Supplementary Table 5. Correlation coefficients between single-subject maps and the group-average map of the SMC IC cluster for Scan 1 and Scan 2 of the listening-reciting task. For each hemisphere in each subject, a correlation coefficient is computed by the function *Corr* (Single-subject map, Group-average map) in MATLAB. LH: left hemisphere; RH: right hemisphere. Bold numbers indicate low correlation ($r < 0.2$).

Scan	Scan 1: Subject 1 (Fig. 6A) and Subjects 2-31 (Suppl. Fig. 7) vs. Group-average (Fig. 6B)		Scan 2: Subject 1 (Fig. 6A) and Subjects 2-31 (Suppl. Fig. 8) vs. Group-average (Fig. 6B)	
Subject	LH	RH	LH	RH
1	0.8047	0.865	0.8219	0.867
2	0.6567	0.7283	0.6881	0.7437
3	0.7609	0.7992	0.7834	0.7943
4	0.6432	0.6754	0.6097	0.6314
5	0.7745	0.766	0.7539	0.7583
6	0.6557	0.6764	0.5094	0.5412
7	0.7046	0.7373	0.7591	0.7605
8	0.7805	0.7902	0.8075	0.7991
9	0.6834	0.7353	0.7087	0.7762
10	0.6629	0.7106	0.7058	0.7615
11	0.7799	0.7961	0.7723	0.7773
12	0.6948	0.7809	0.7366	0.8081
13	0.2602	0.6126	**0.0565**	0.6288
14	0.8413	0.8108	0.7292	0.6977
15	0.6416	0.6779	0.7255	0.7518
16	0.7353	0.6785	0.713	0.6319
17	0.7168	0.7632	0.7186	0.7917
18	0.5844	0.5198	0.7446	0.6947
19	0.6919	**0.1121**	0.6457	**0.017**
20	0.7106	0.7635	0.6901	0.7712
21	0.6716	0.6093	0.8062	0.7676
22	0.5086	0.4706	0.4941	0.4188
23	0.7145	0.7428	0.6998	0.7522
24	0.6644	0.6672	0.6827	0.6874
25	0.7771	0.7733	0.8091	0.8019
26	0.6339	0.567	0.6462	0.5764
27	0.6507	0.6693	0.712	0.7448
28	0.6957	0.7272	0.6445	0.6795
29	0.7638	0.76	0.6661	0.6628
30	0.7728	0.8218	0.7808	0.8325
31	0.7576	0.6547	0.7744	0.6468