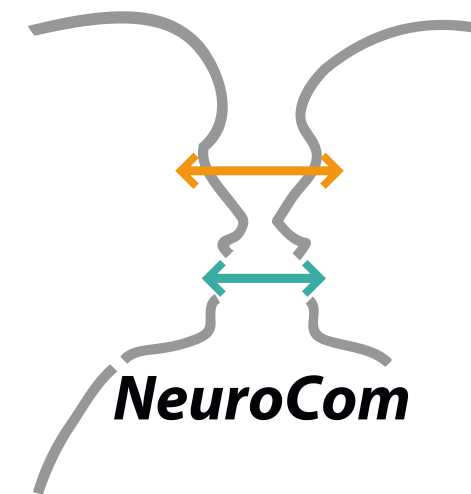


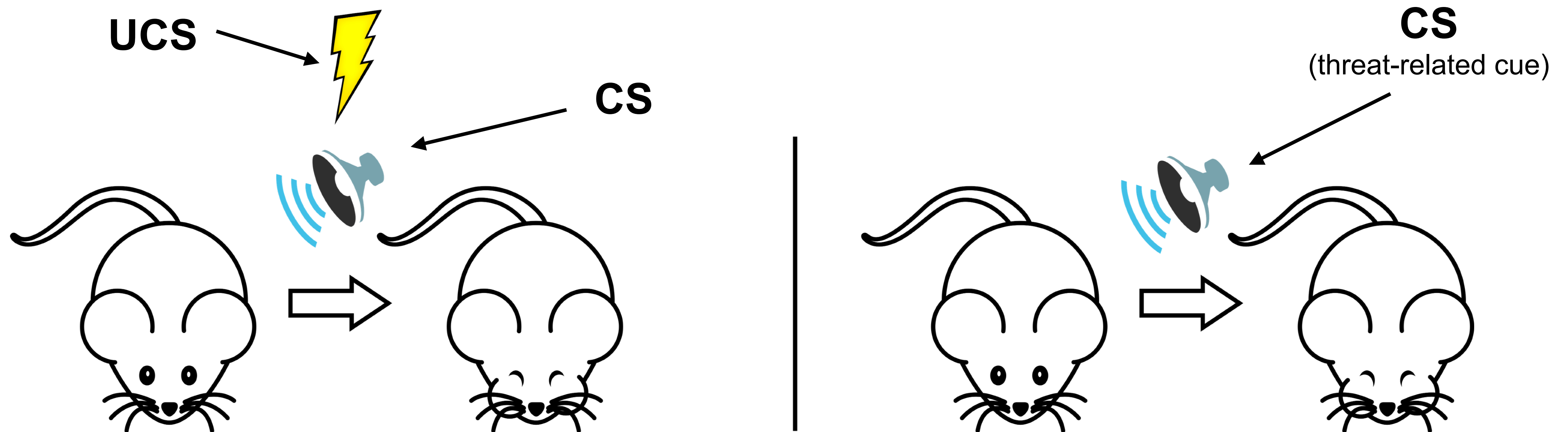


Fear acquisition induces spatio-temporal patterns of activity from salience to default mode network

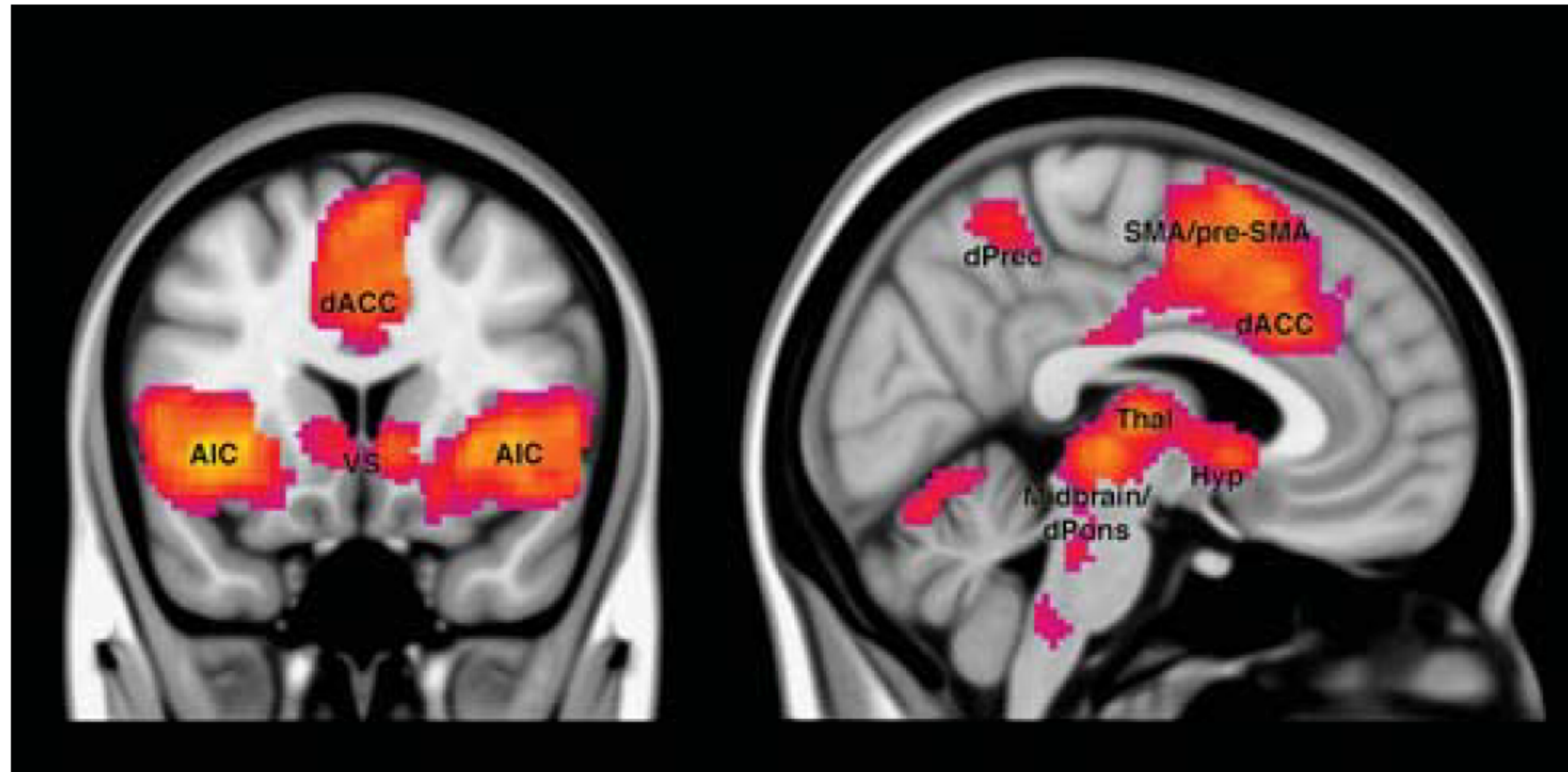
Blazej M. Baczkowski, Sabine Oligschlaeger, Michael Gaebler, Susanne Erk, Henrik Walter, Arno Villringer, Ilya M. Veer, & Daniel S. Margulies



Fear conditioning involves pairing an aversive stimulus (UCS) with a neutral stimulus (CS)

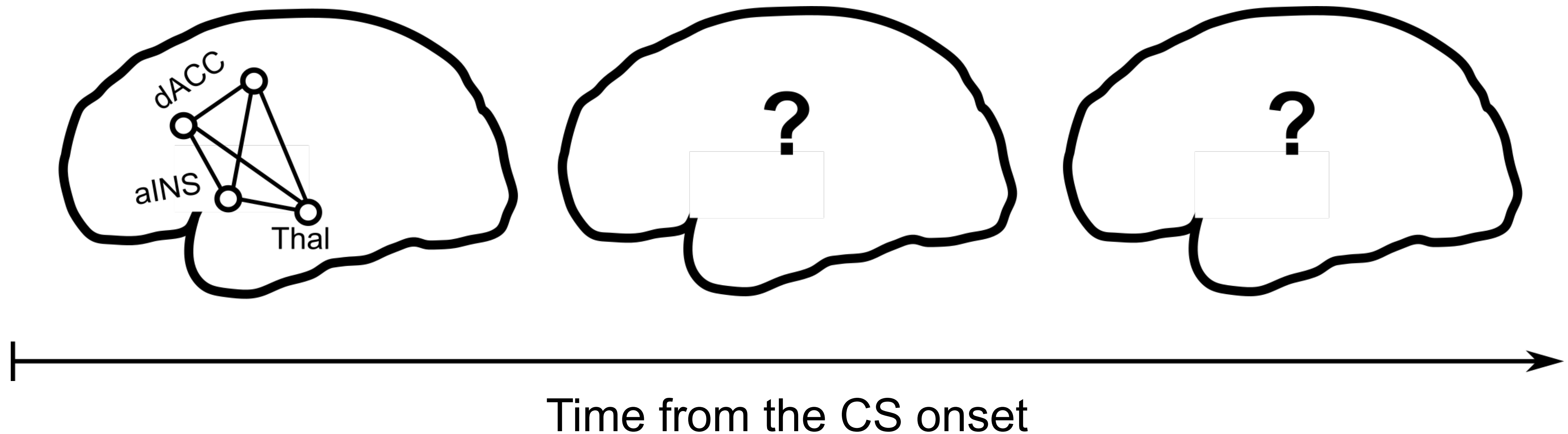


Threat-related cue (CS) activates the salience network

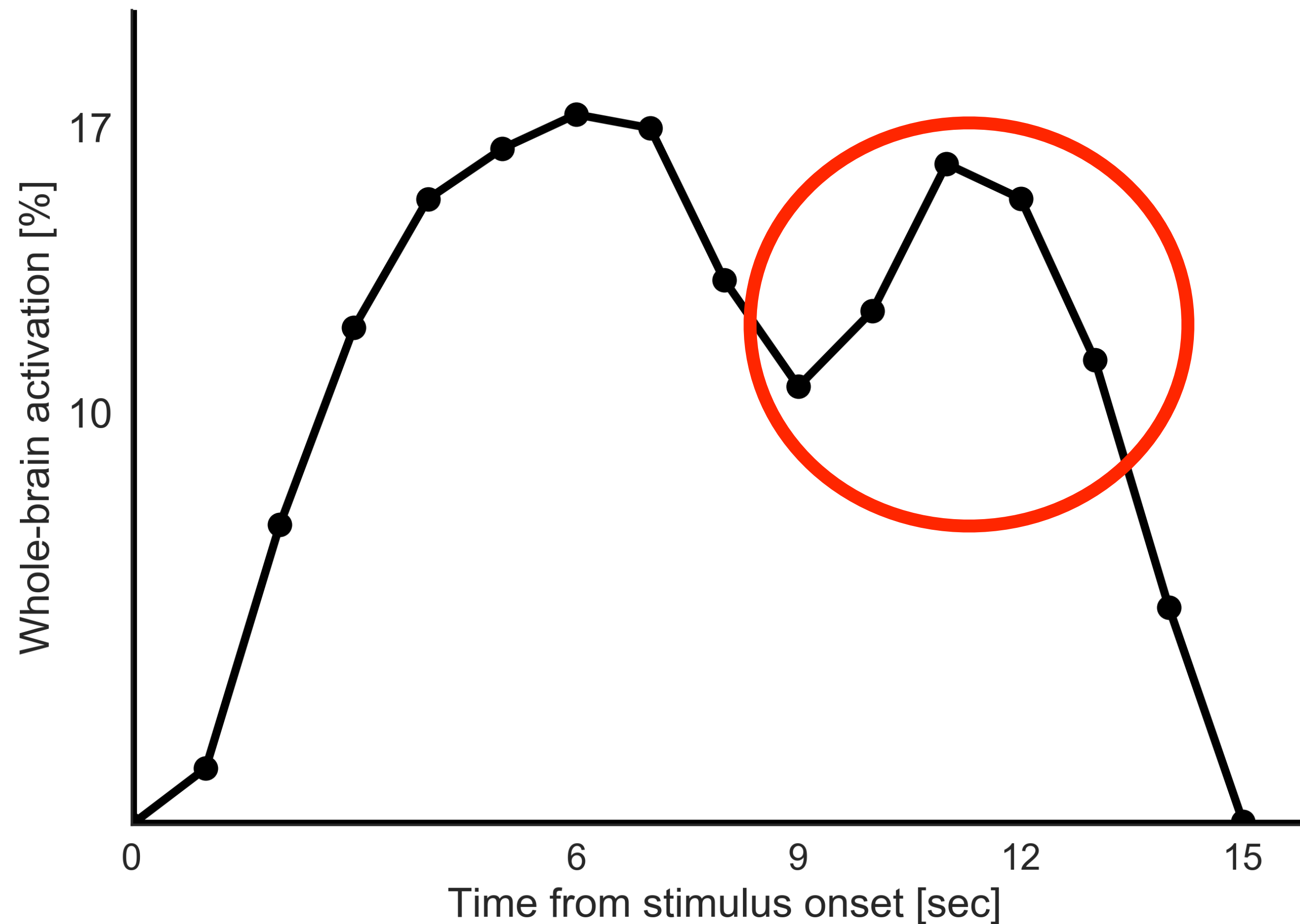


Fullana et al. (2016)
Mol. Psych.

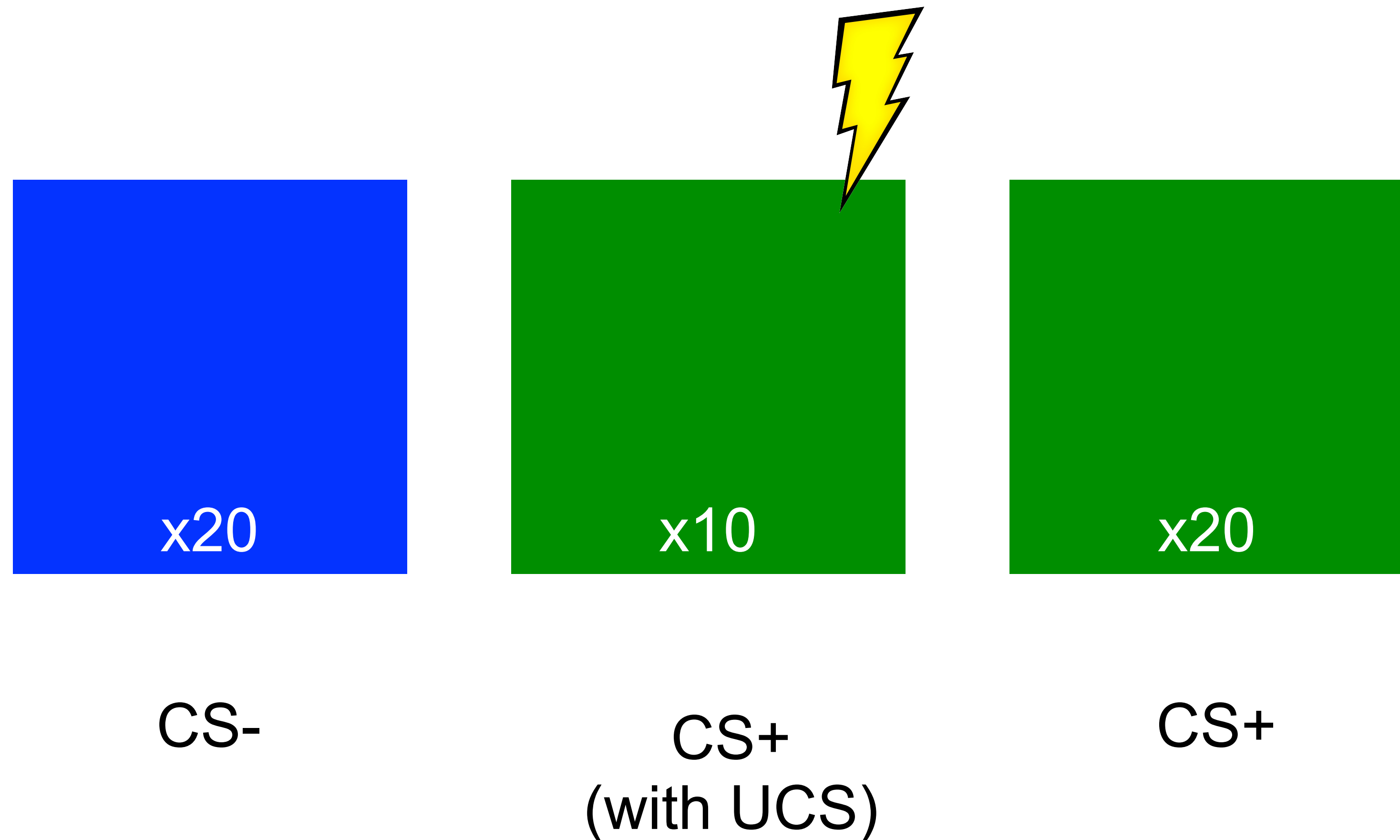
Here, we explored whether threat-related cue (CS) induces subsequent activation beyond the salience network



We found consistent late activation induced by a threat-related cue (CS)



Learning associations was induced by an instructed delay conditioning task



Design

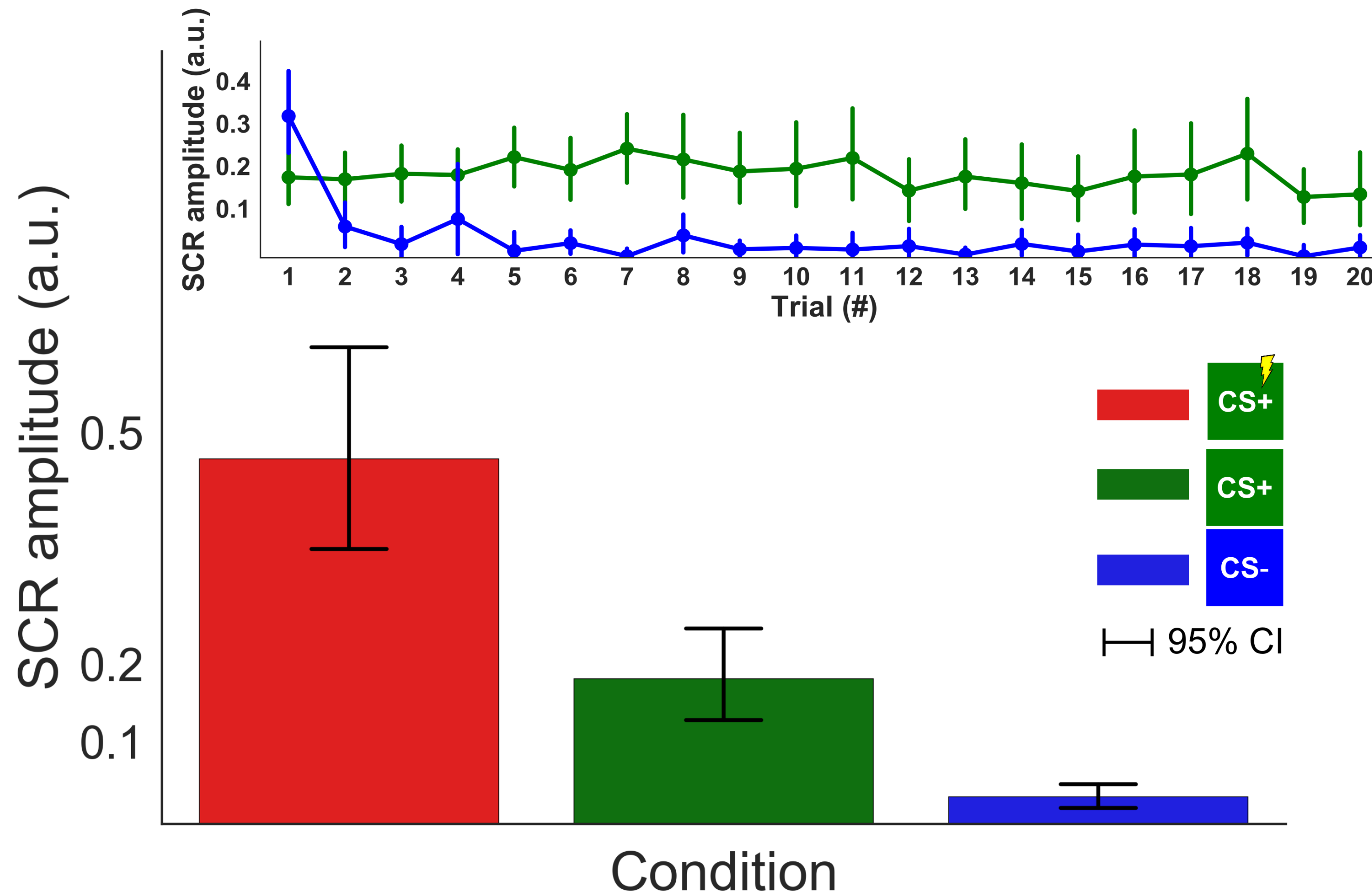
- 29 participants
- partial reinforcement
- UCS (electric shock)

fMRI parameters

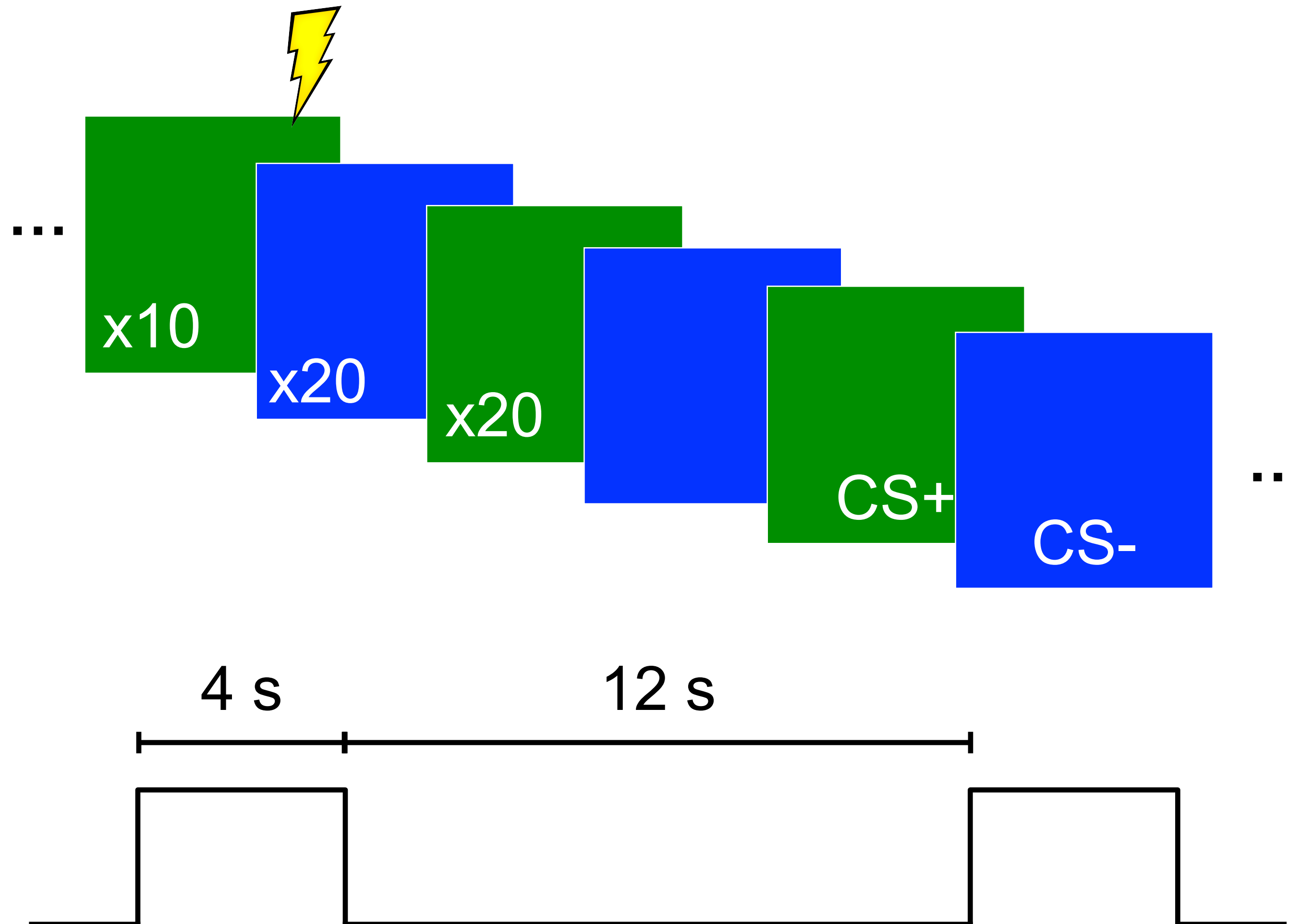
- 413 volumes
- TR=1.96 sec
- 39 axial slices
- sequential ascending
- 3.0 x 3.0 x 2.4 mm

Bilkei-Gorzo, Erk et al (2013), J. Neurosci.

Skin conductance response (SCR) differentiated the three conditions



Long inter stimulus interval enabled us to investigate the late activation



Design

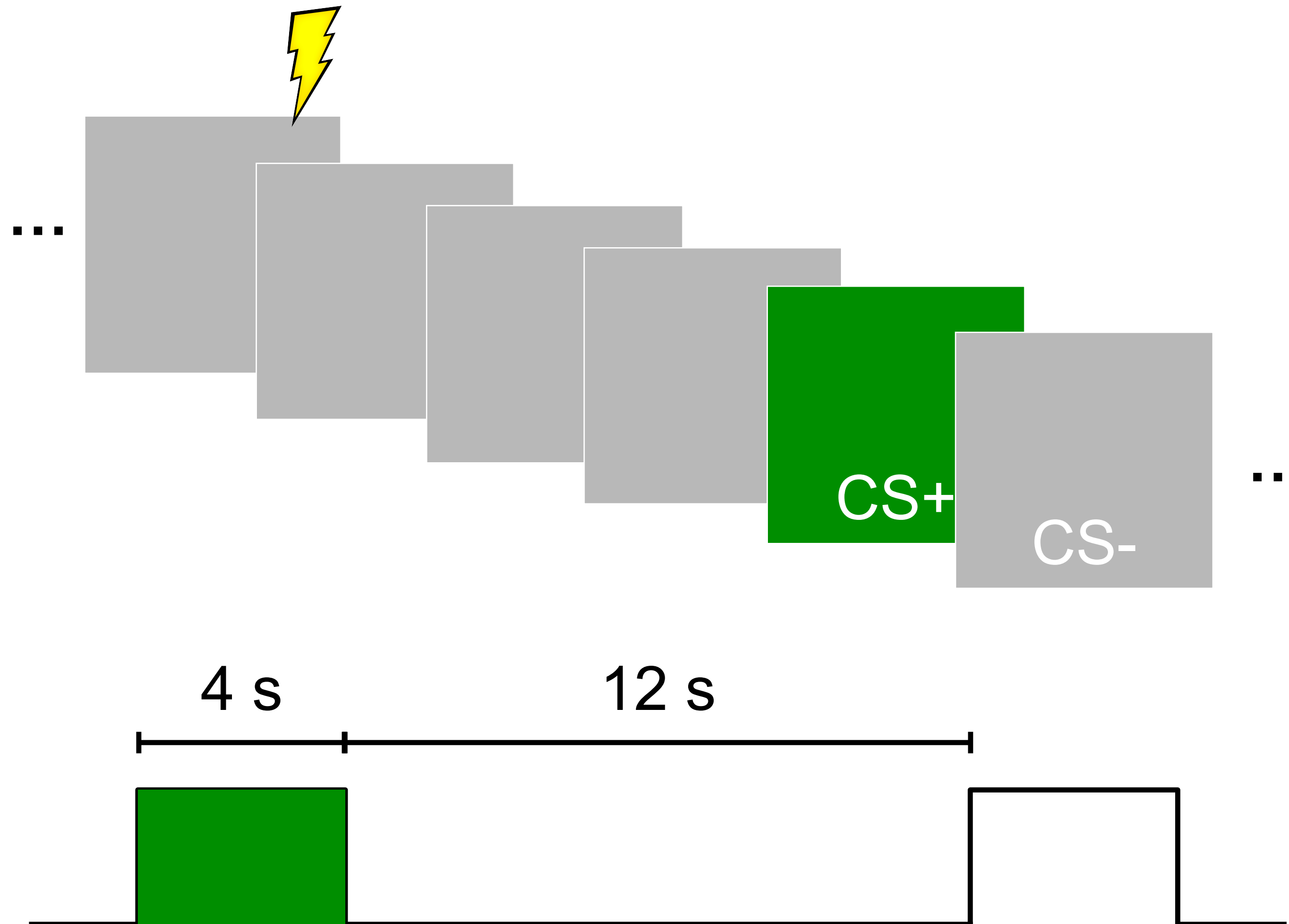
- 29 participants
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fMRI parameters

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- TR=1.96 sec
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- 3.0 x 3.0 x 2.4 mm

Bilkei-Gorzo, Erk et al (2013), J. Neurosci.

Long inter stimulus interval enabled us to investigate the late activation



Design

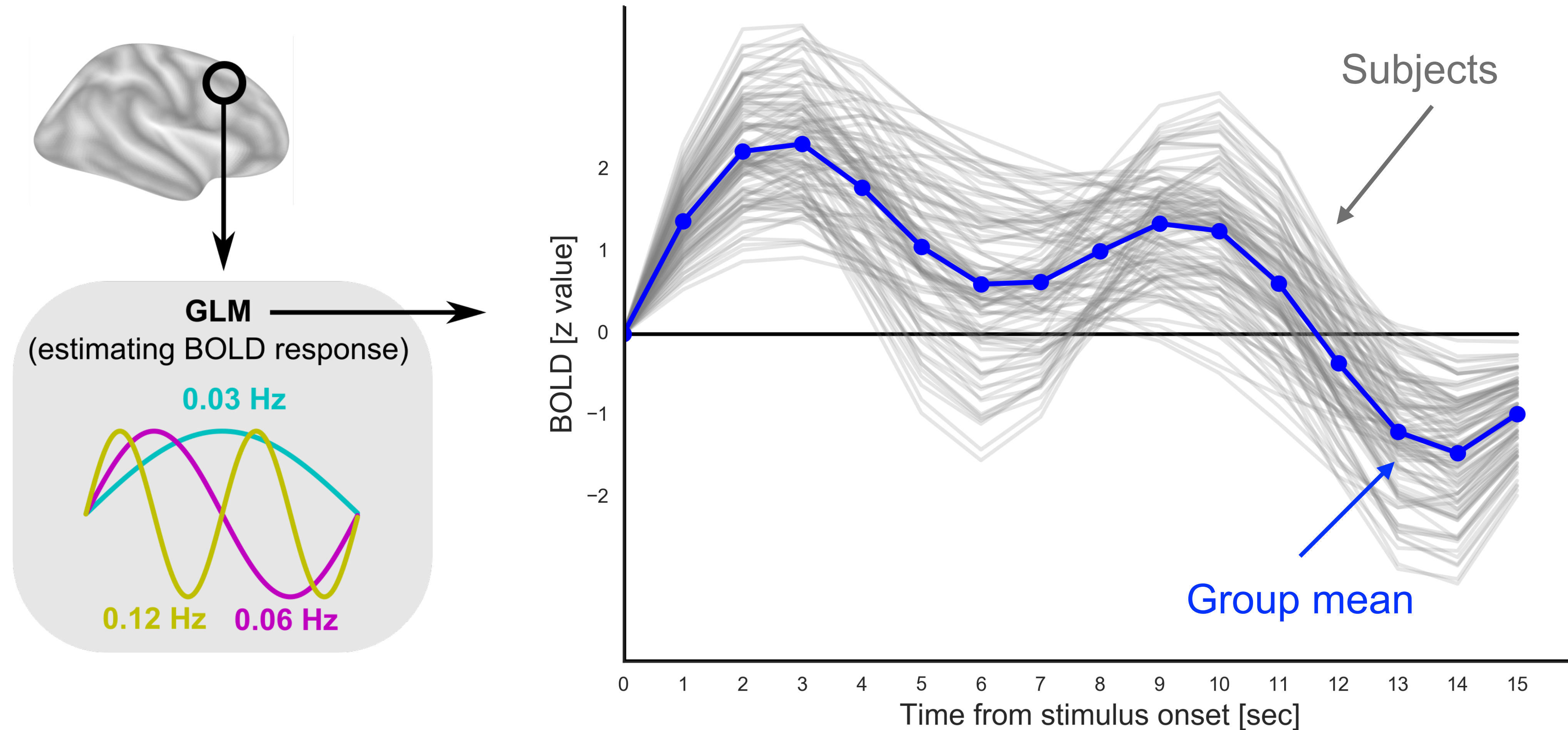
- 29 participants
- partial reinforcement
- UCS (electric shock)

fMRI parameters

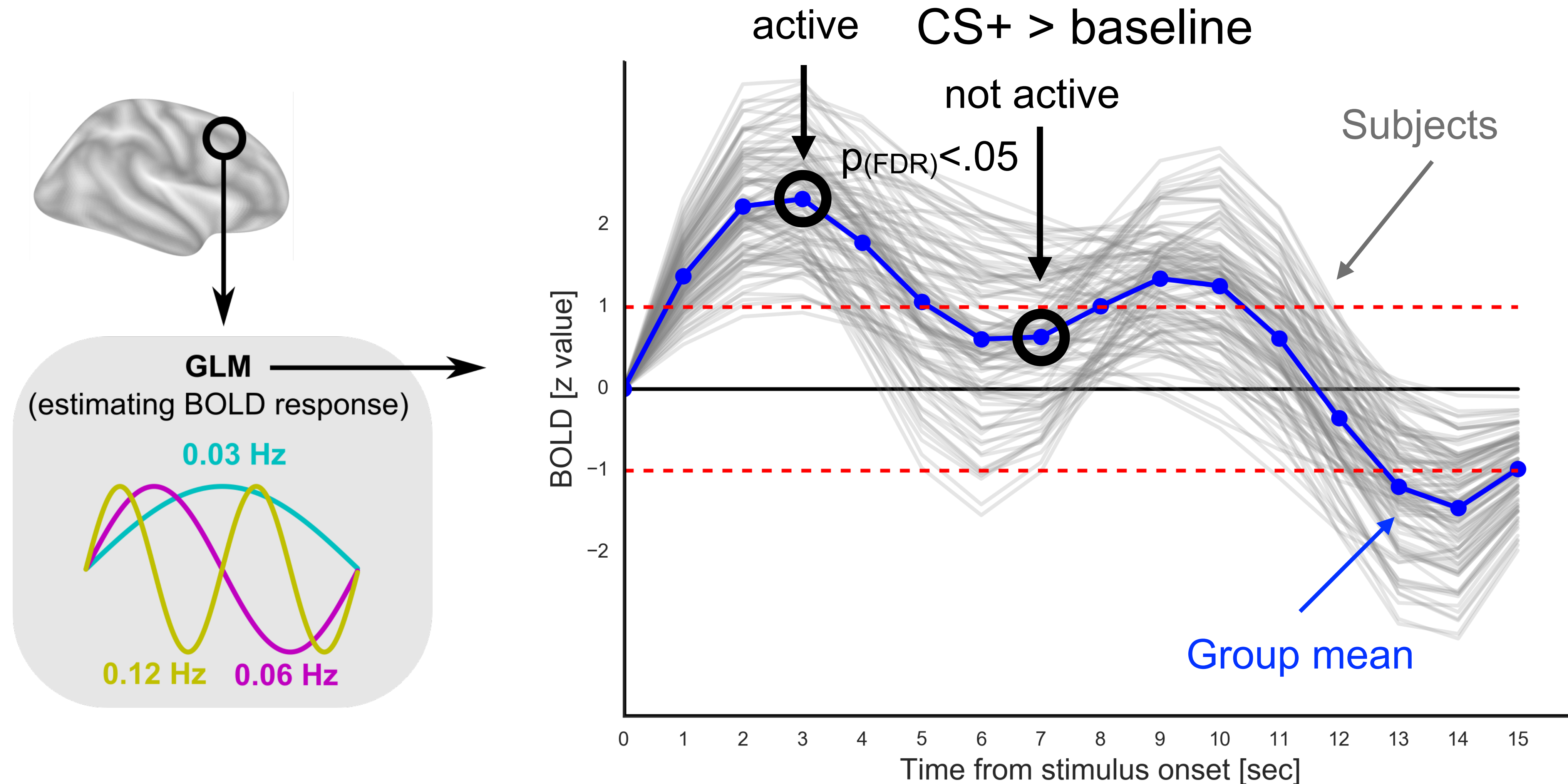
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- TR=1.96 sec
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- sequential ascending
- 3.0 x 3.0 x 2.4 mm

Bilkei-Gorzo, Erk et al (2013), J. Neurosci.

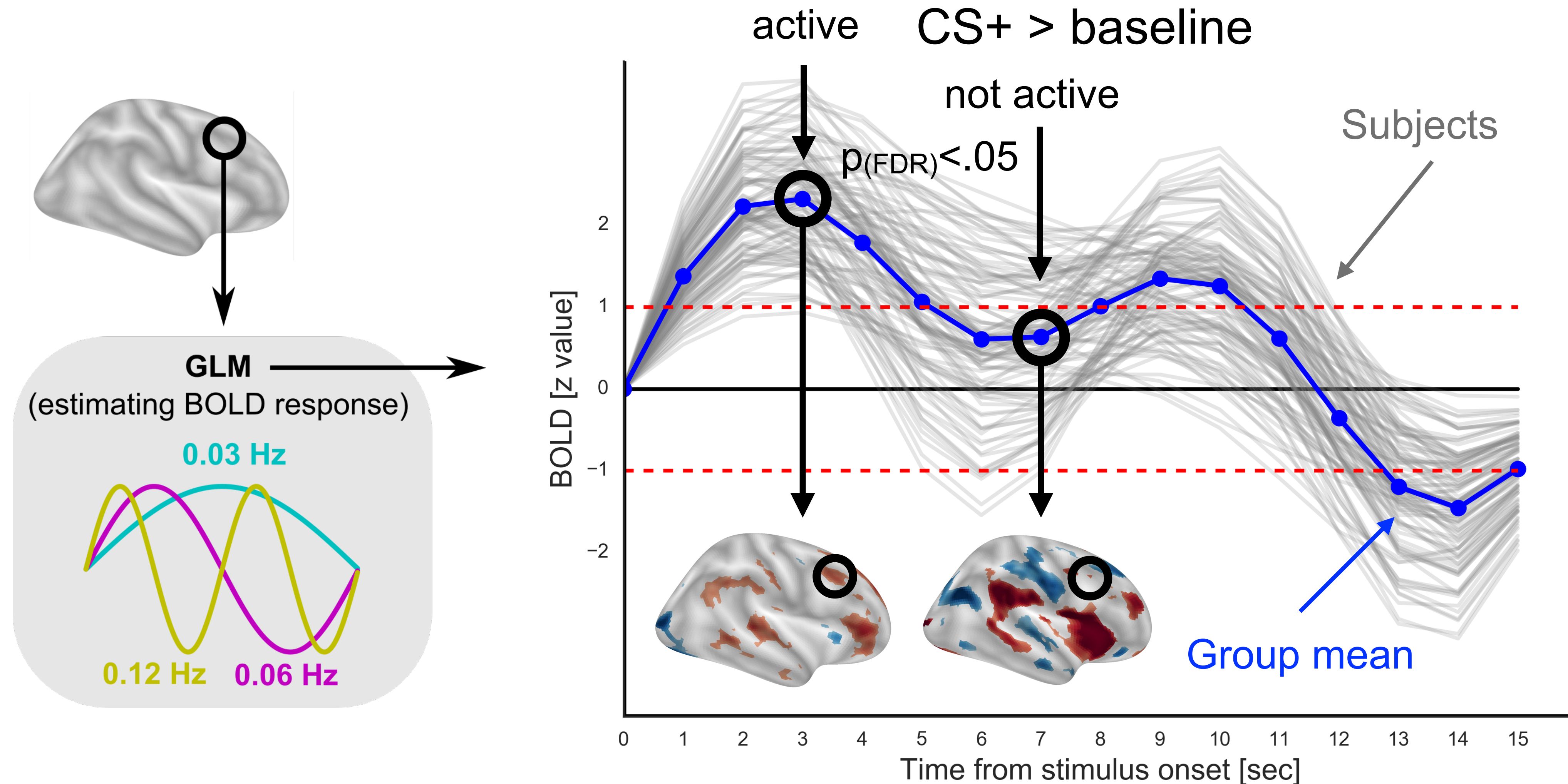
Consistent BOLD response across the group indicated stimulus-induced activity

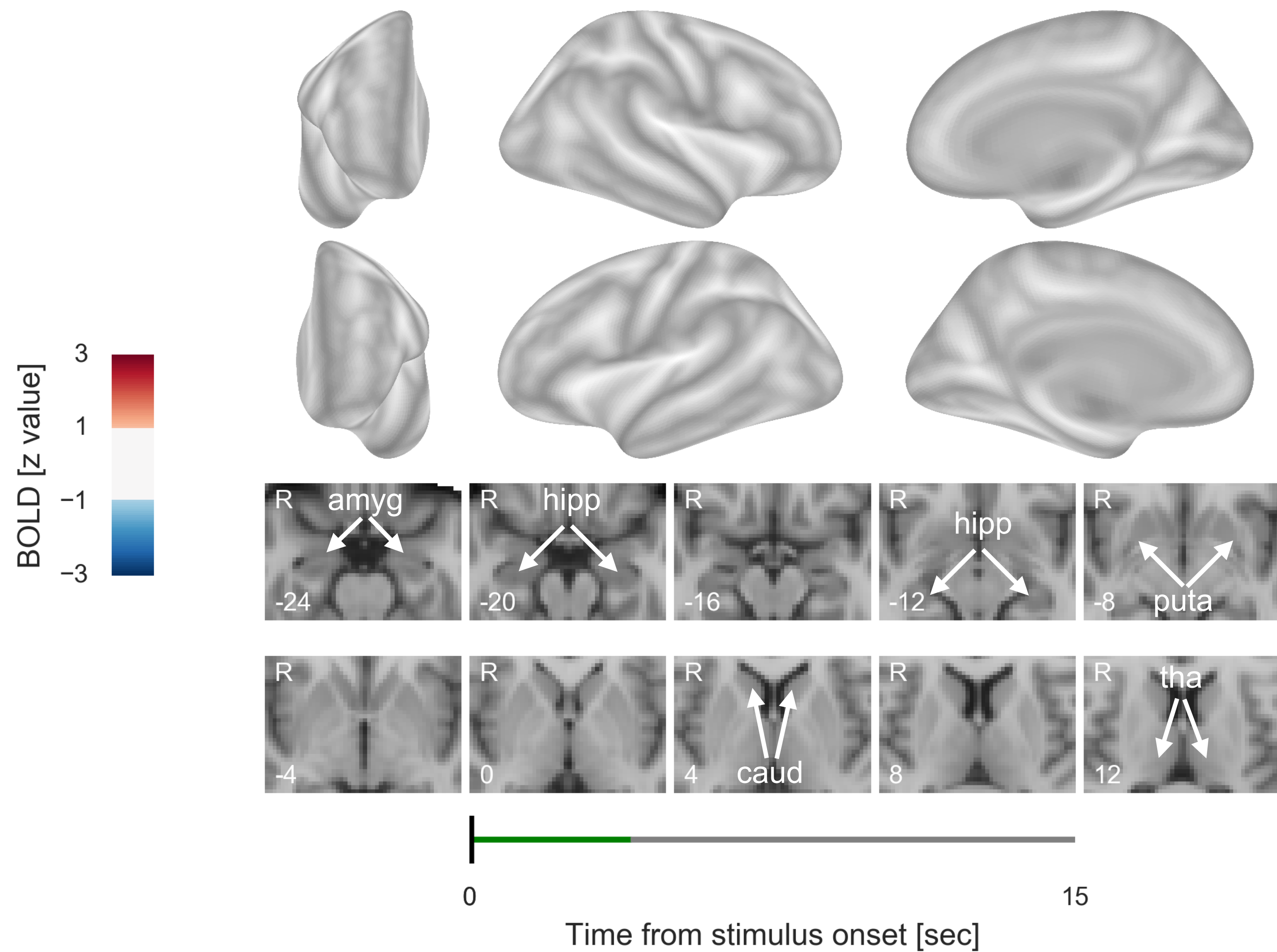


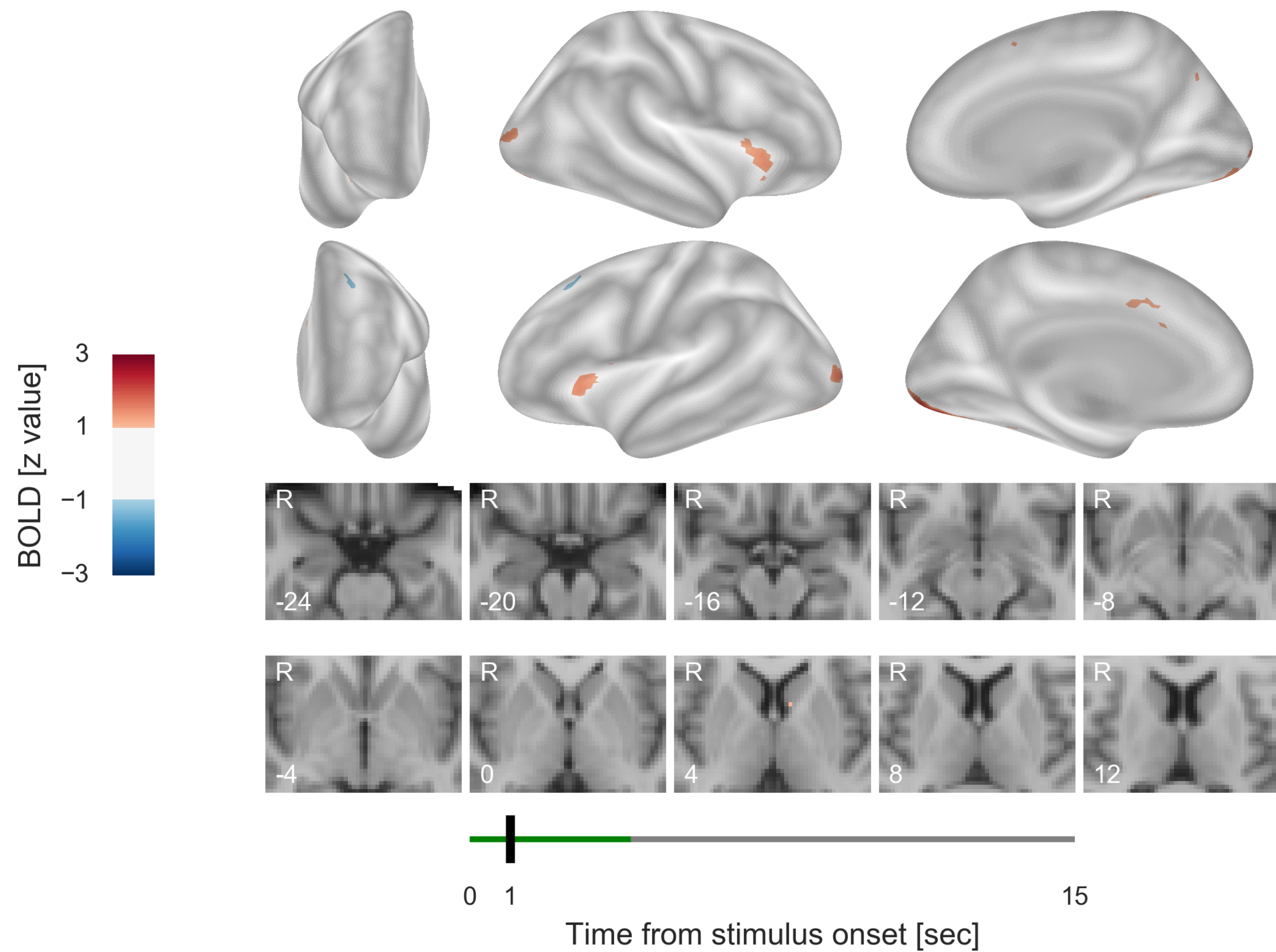
Consistent BOLD response across the group indicated stimulus-induced activity

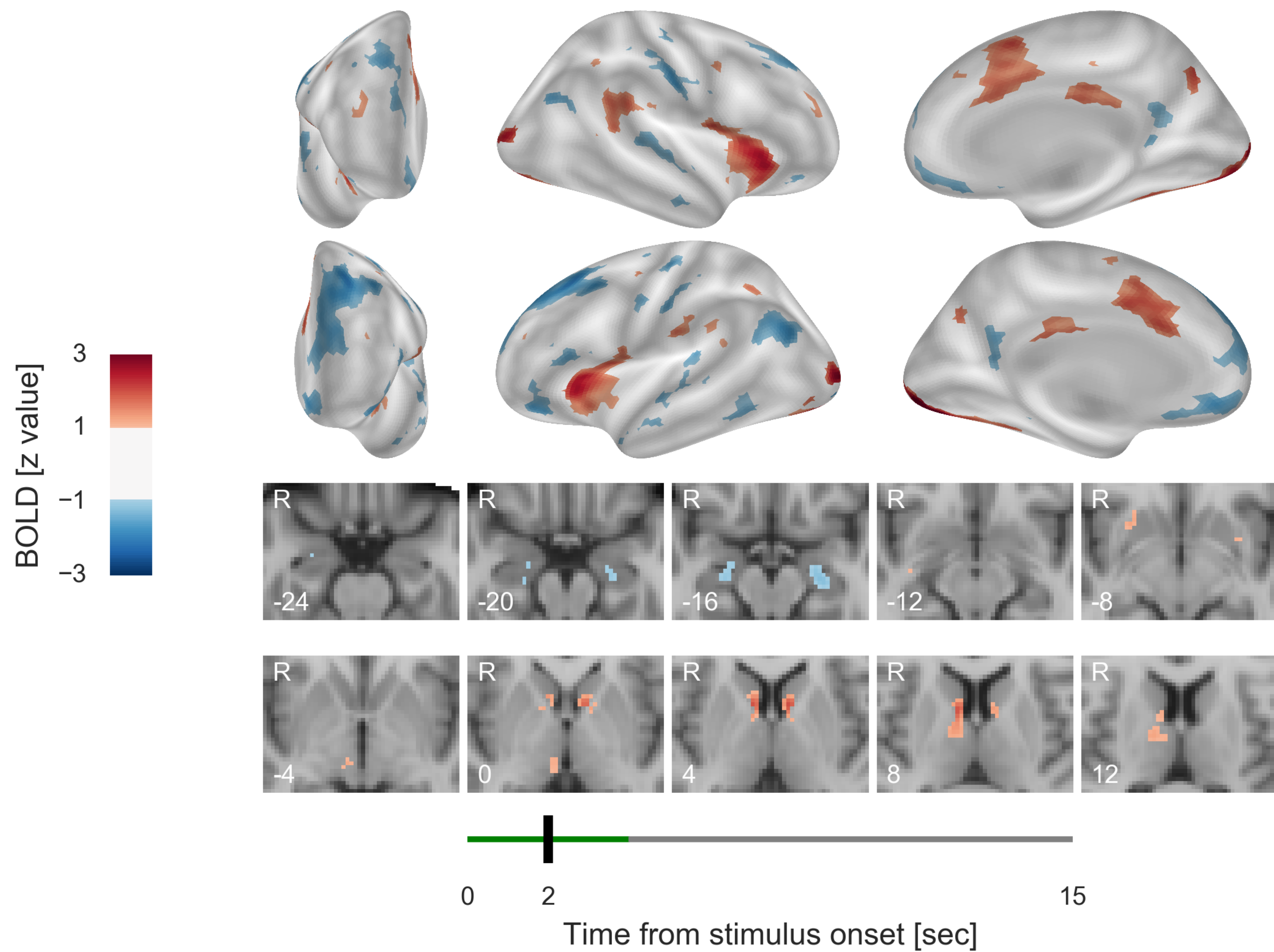


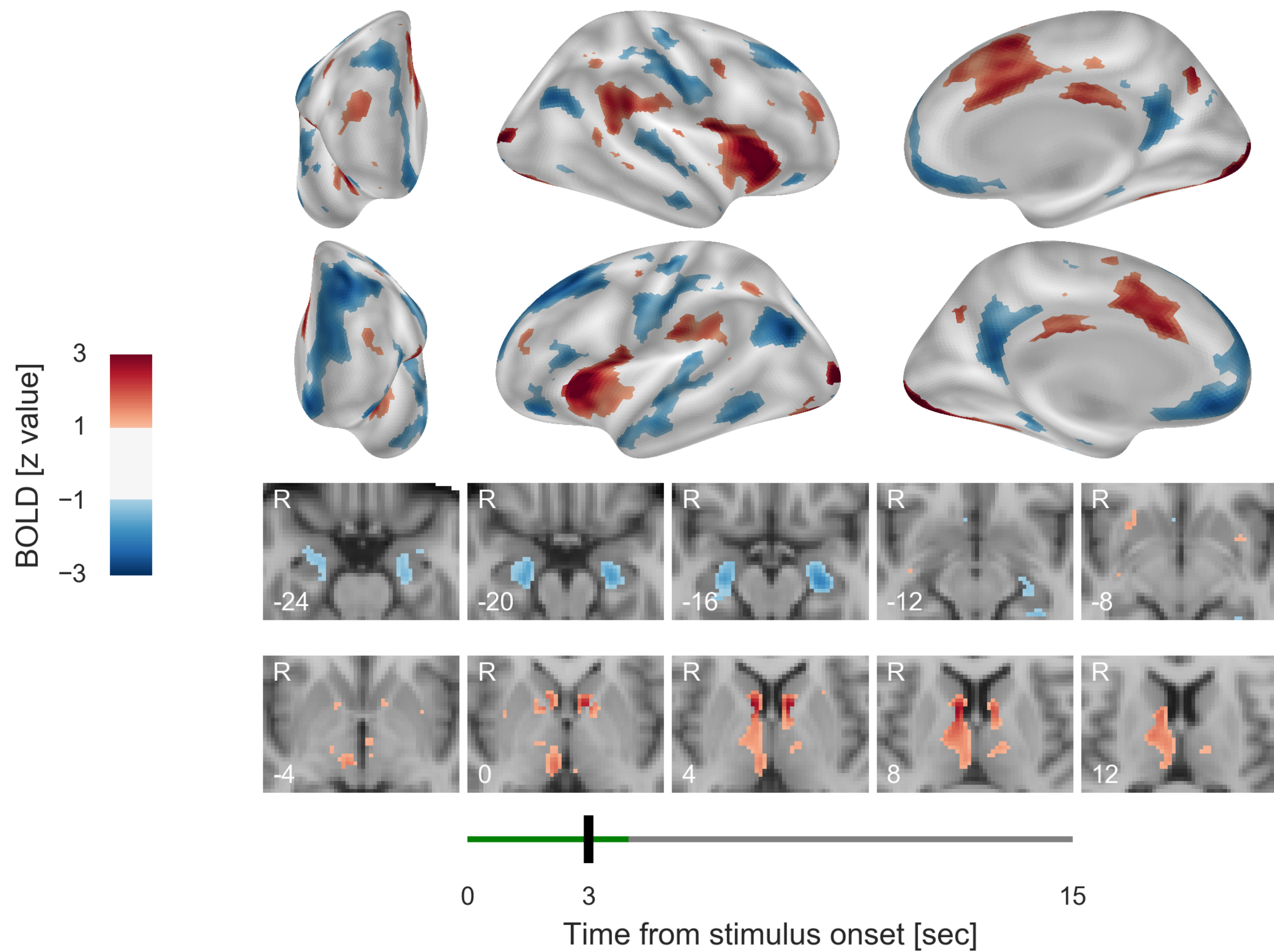
Consistent BOLD response across the group indicated stimulus-induced activity

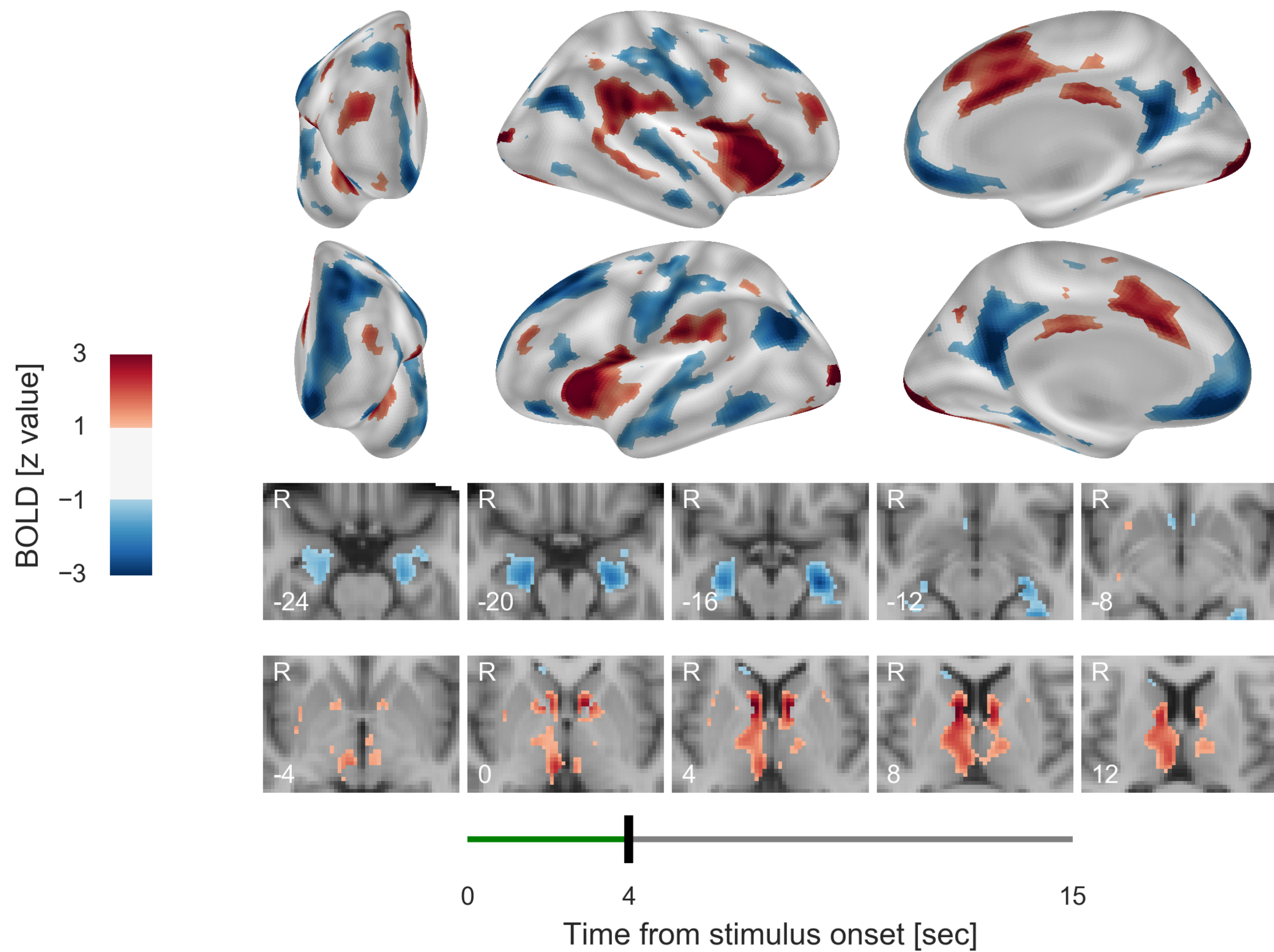


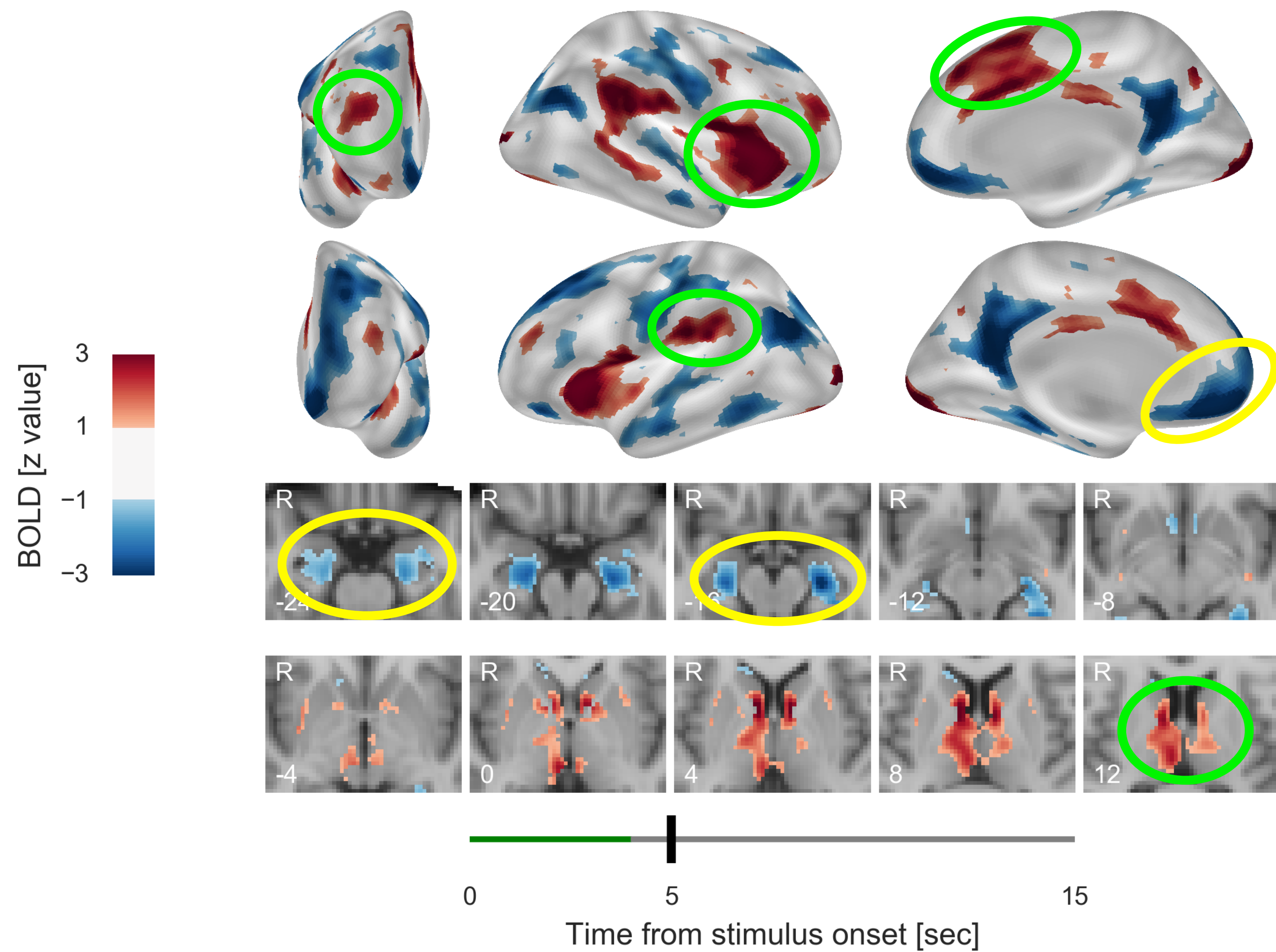


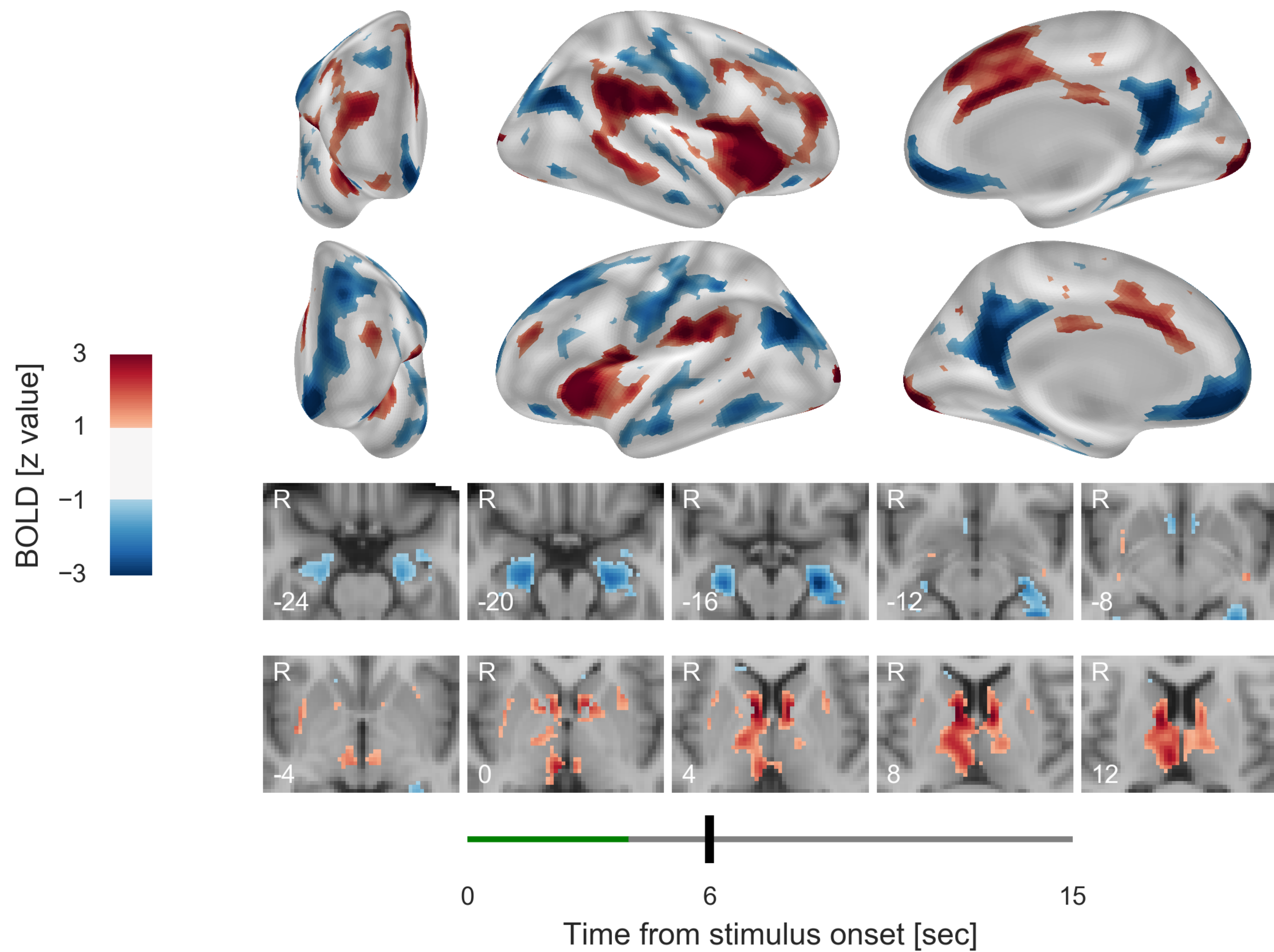


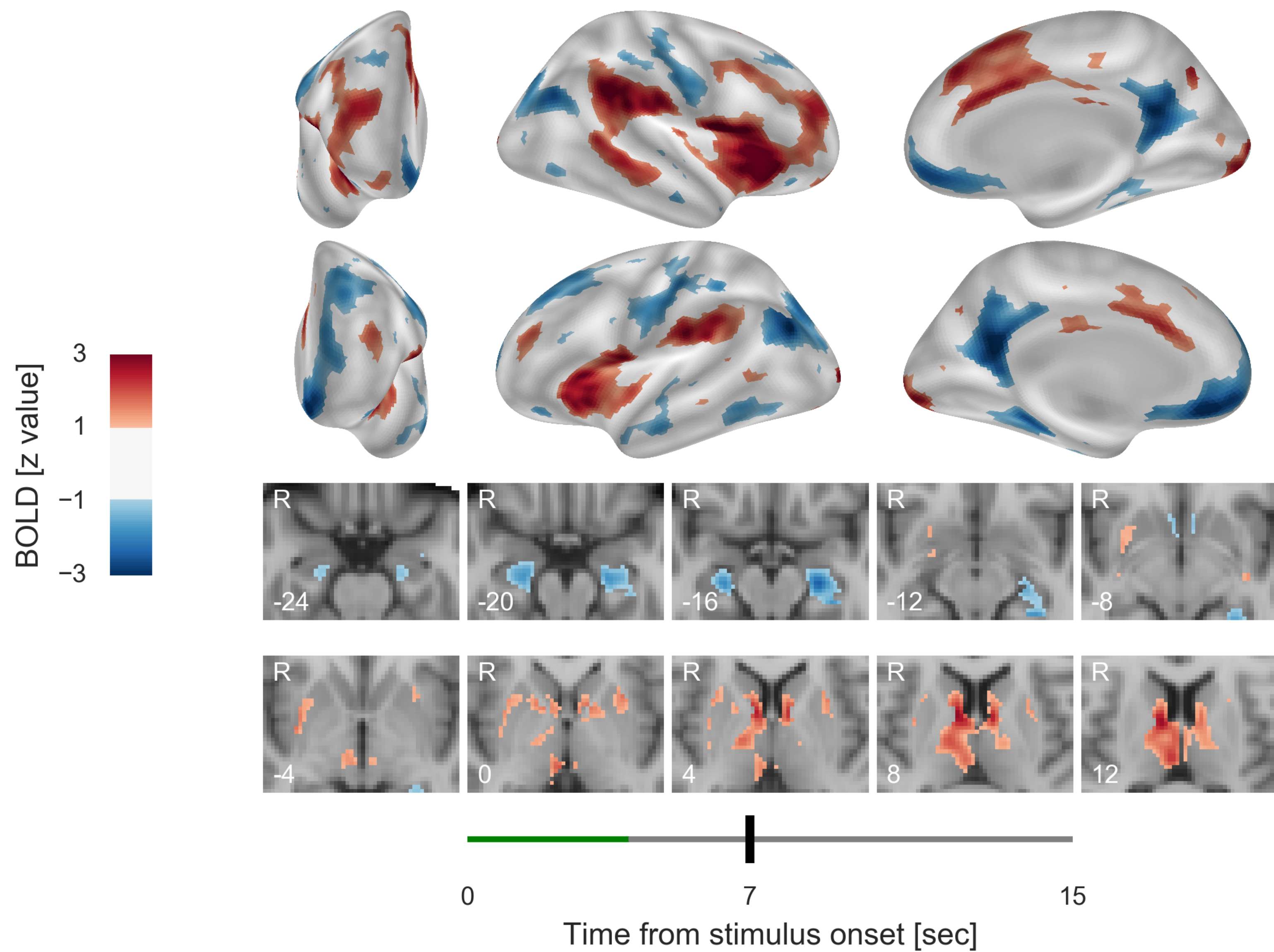


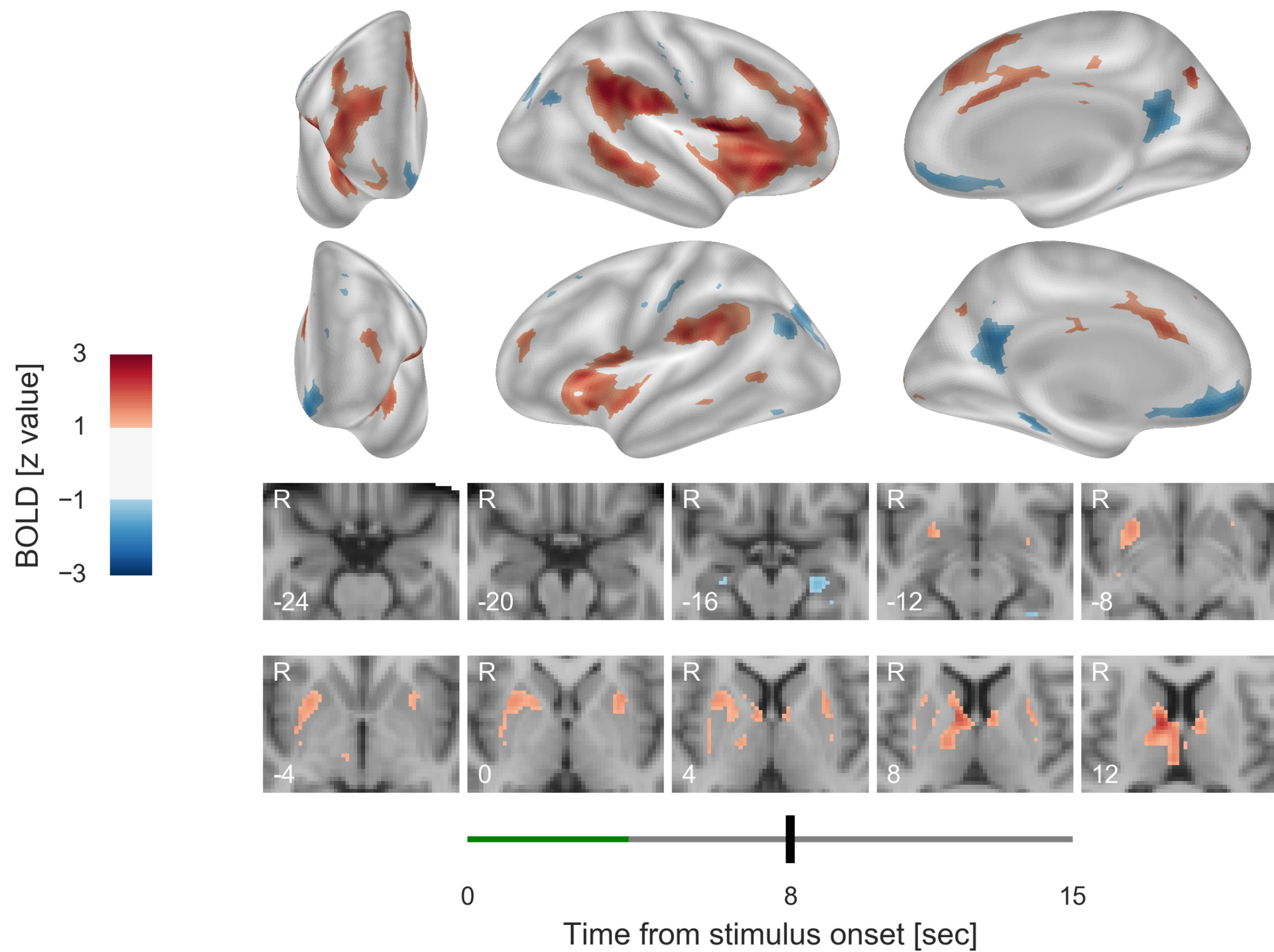


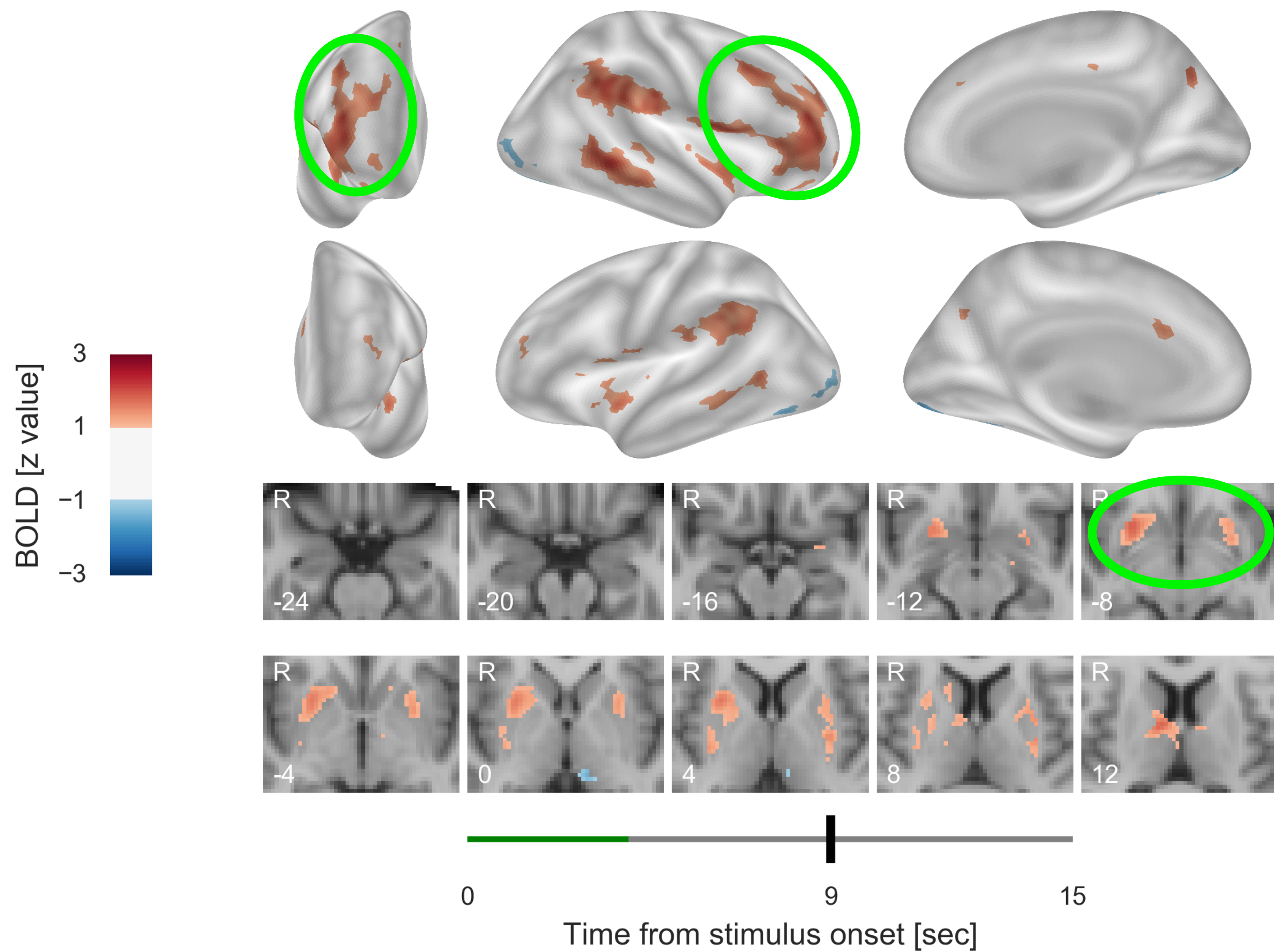


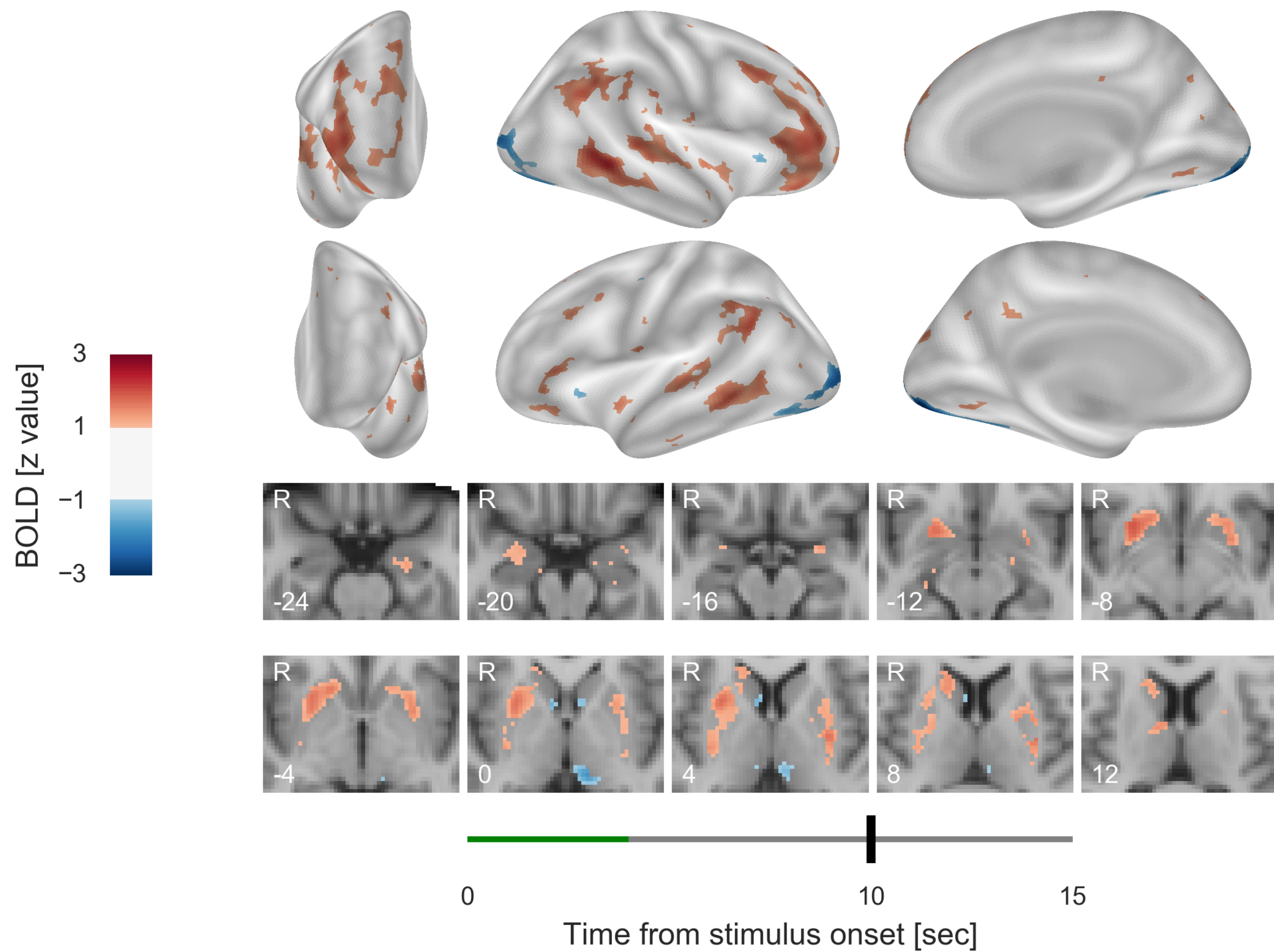


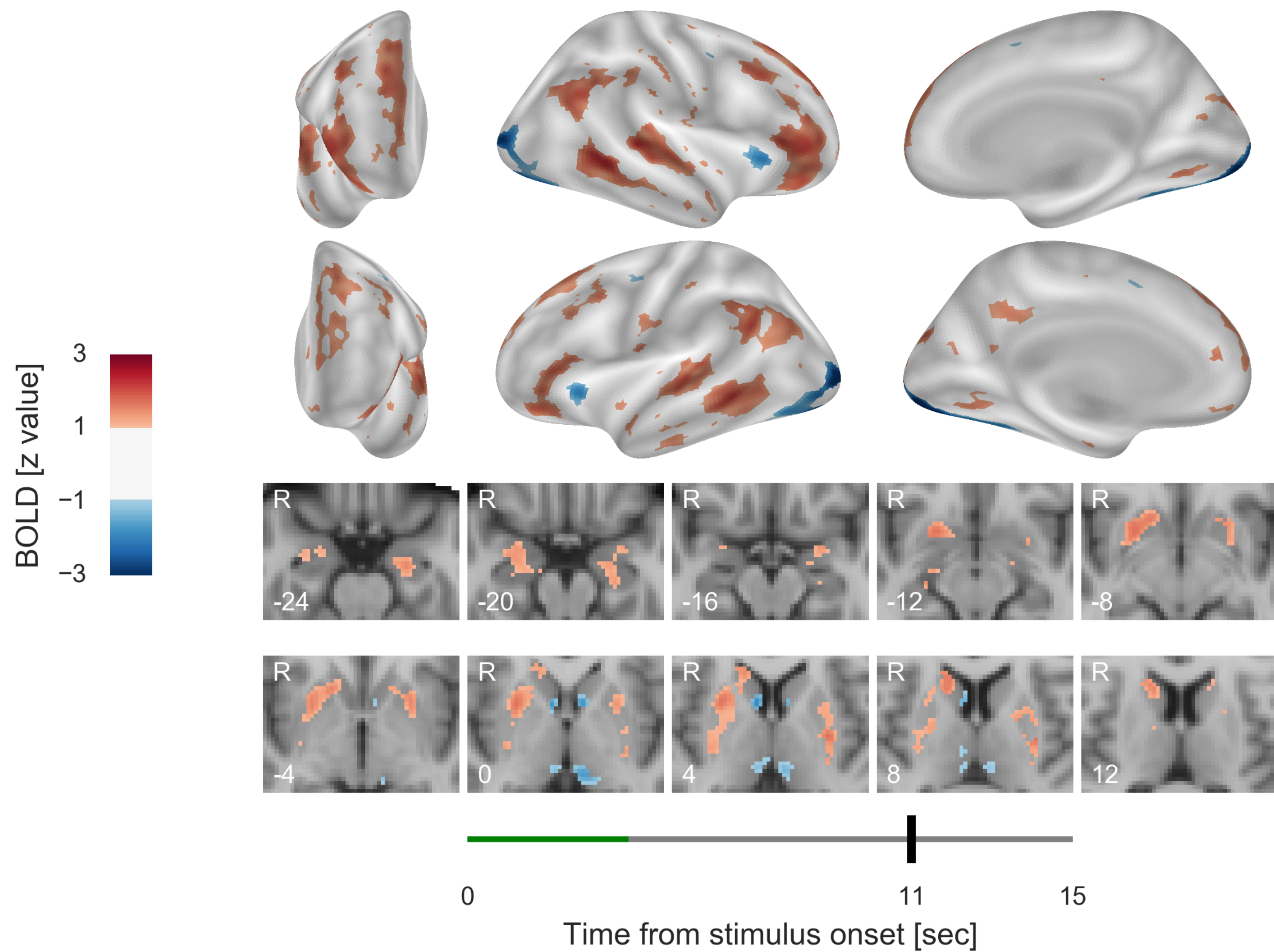


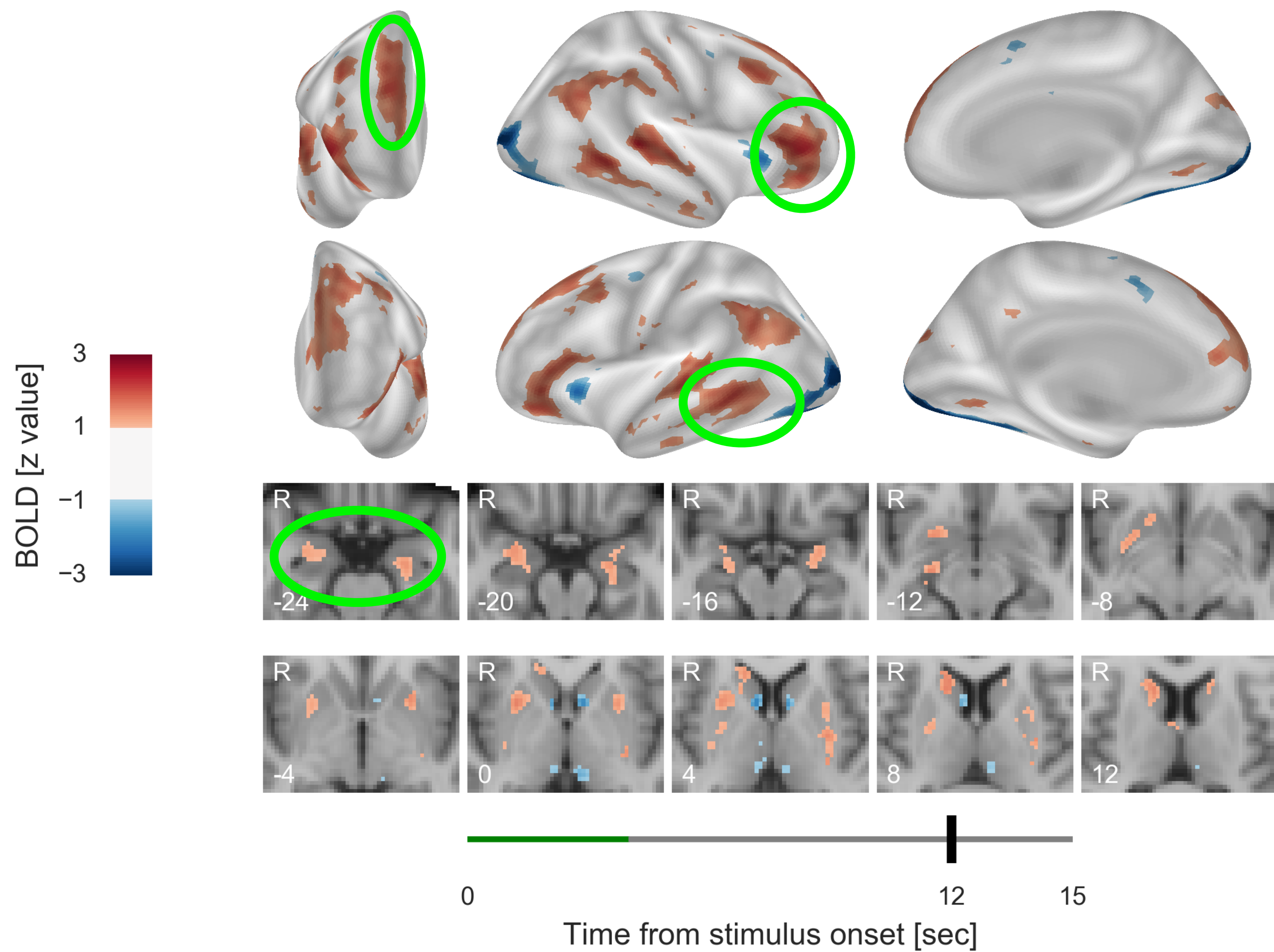


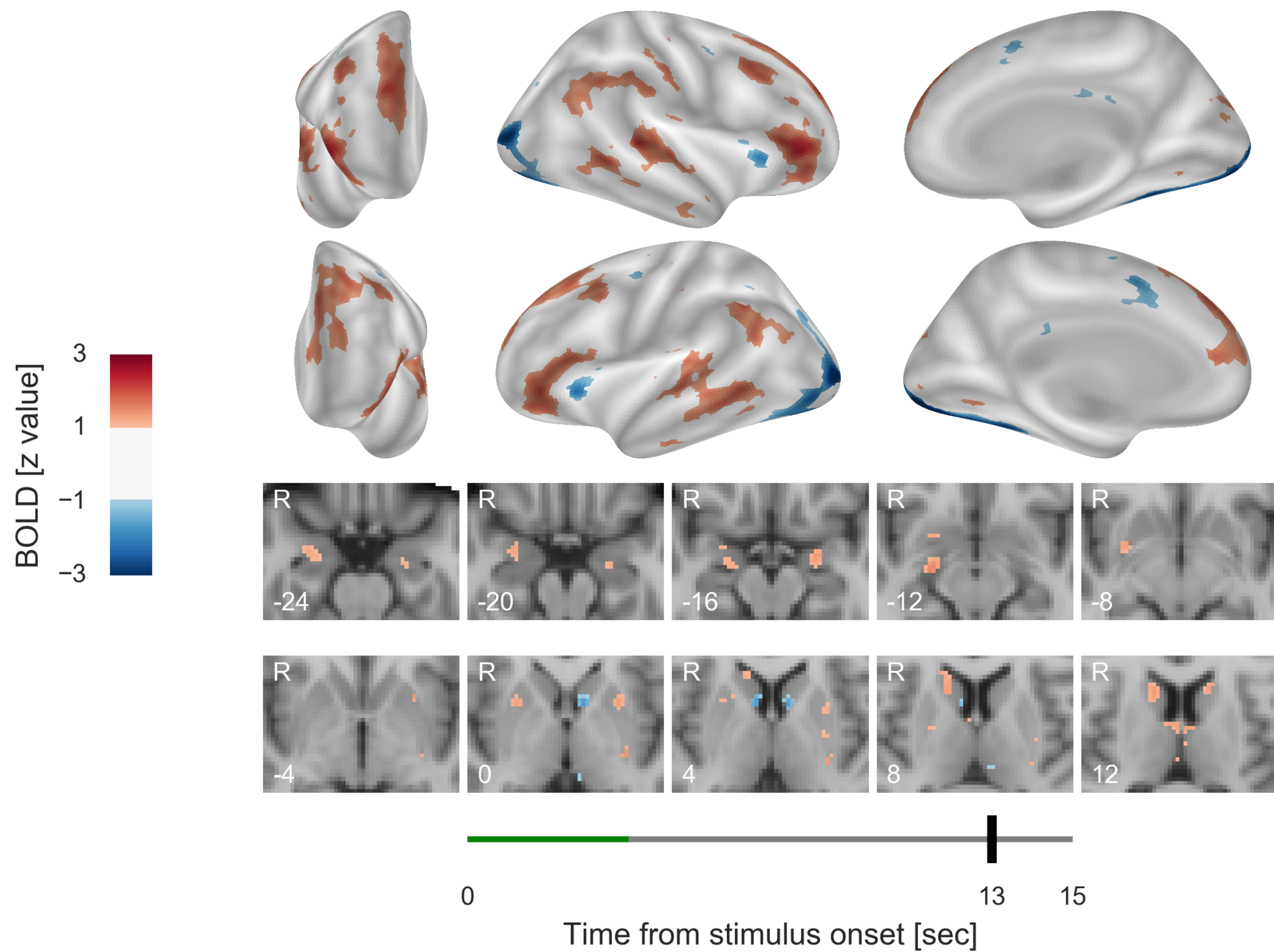


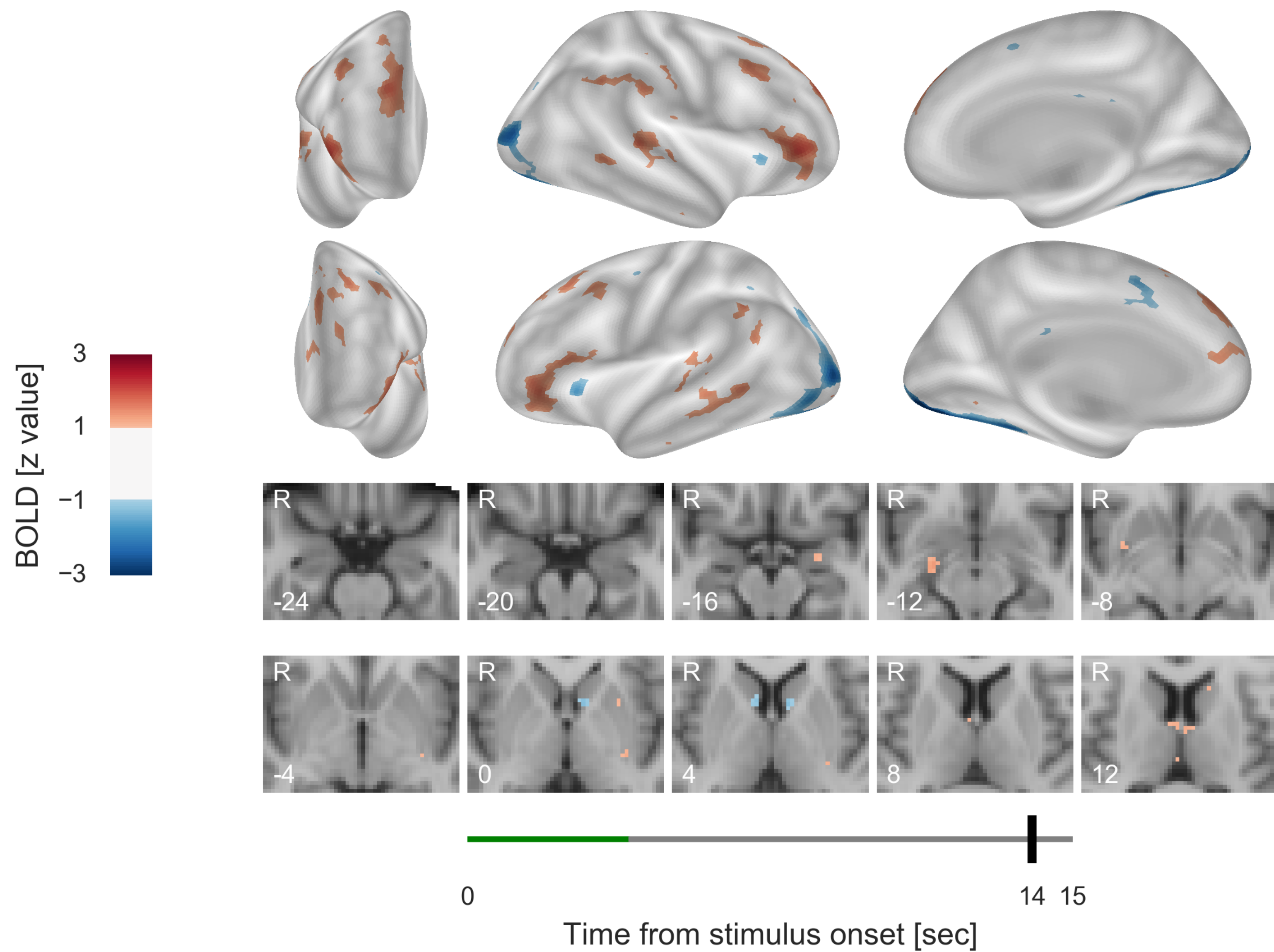


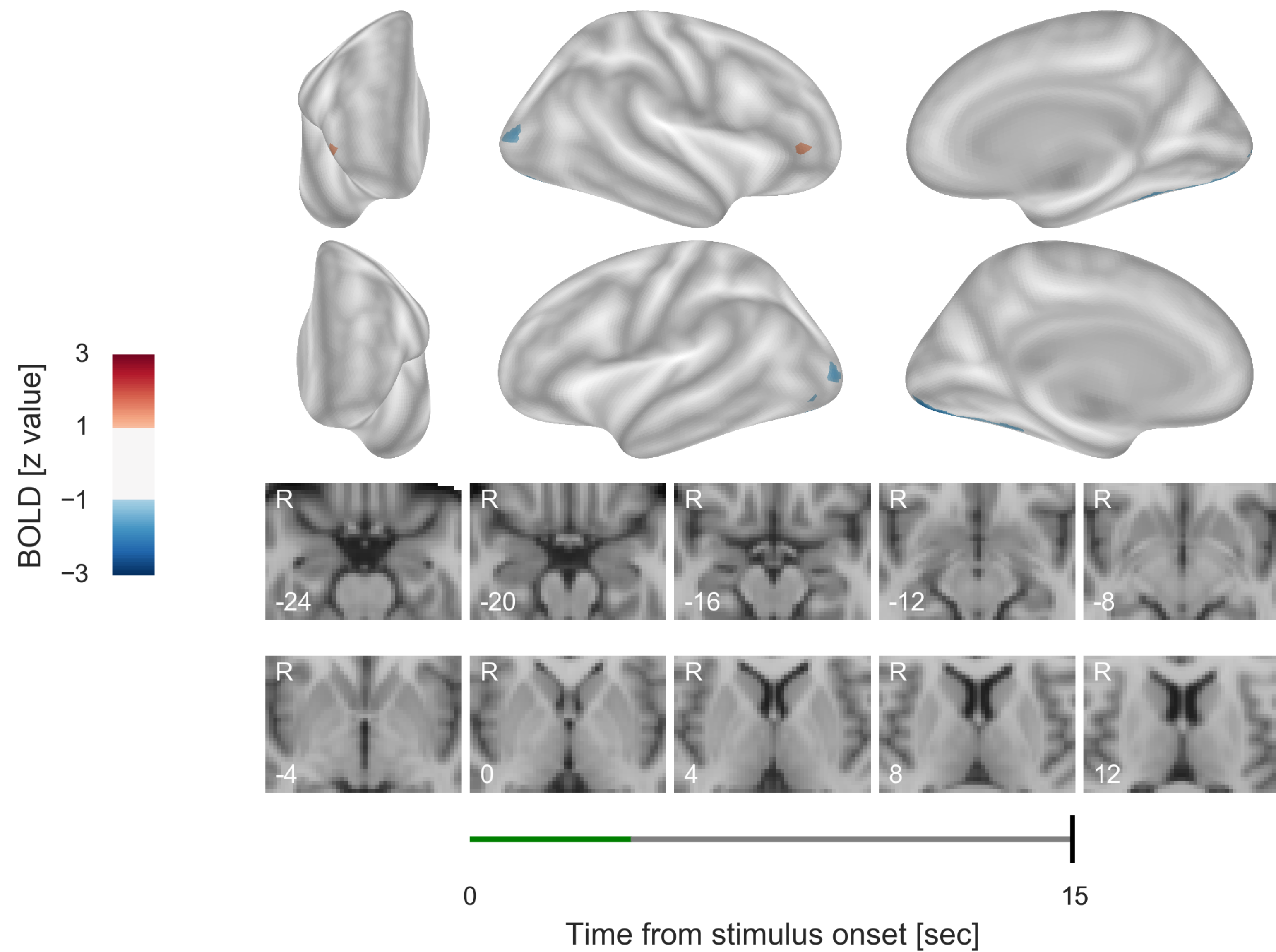








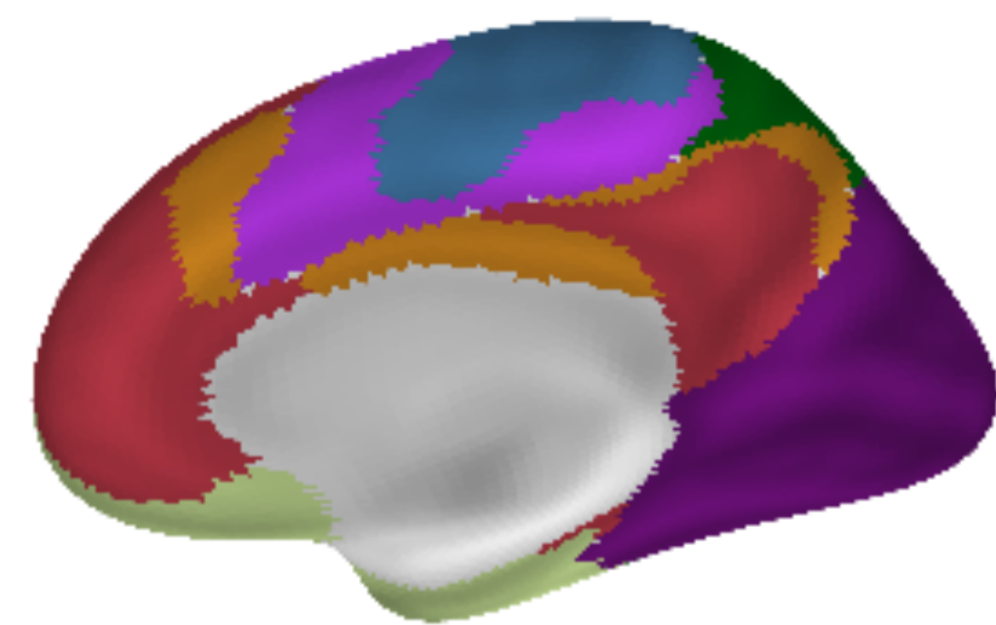
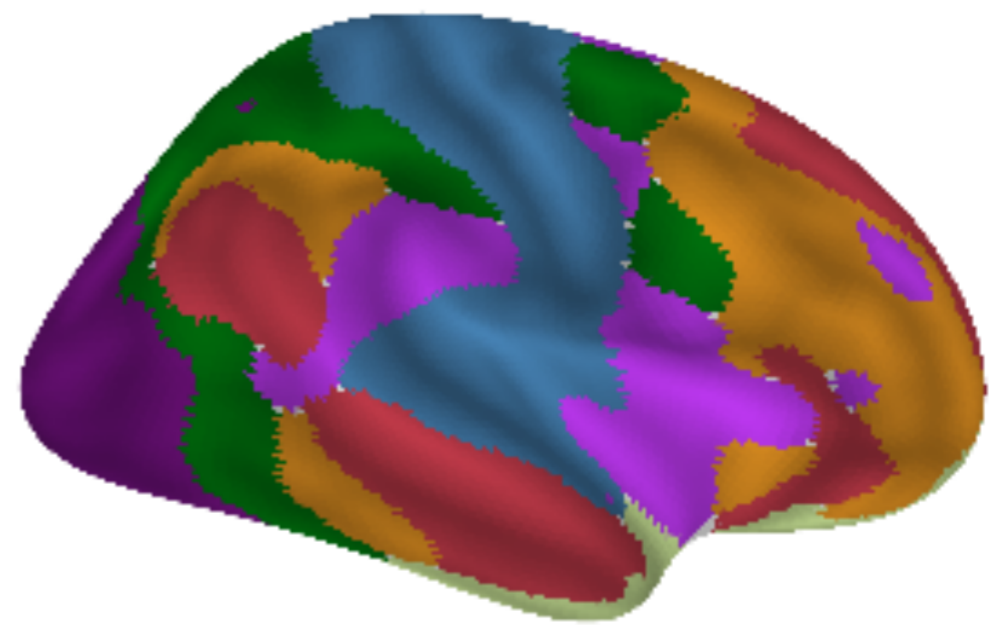




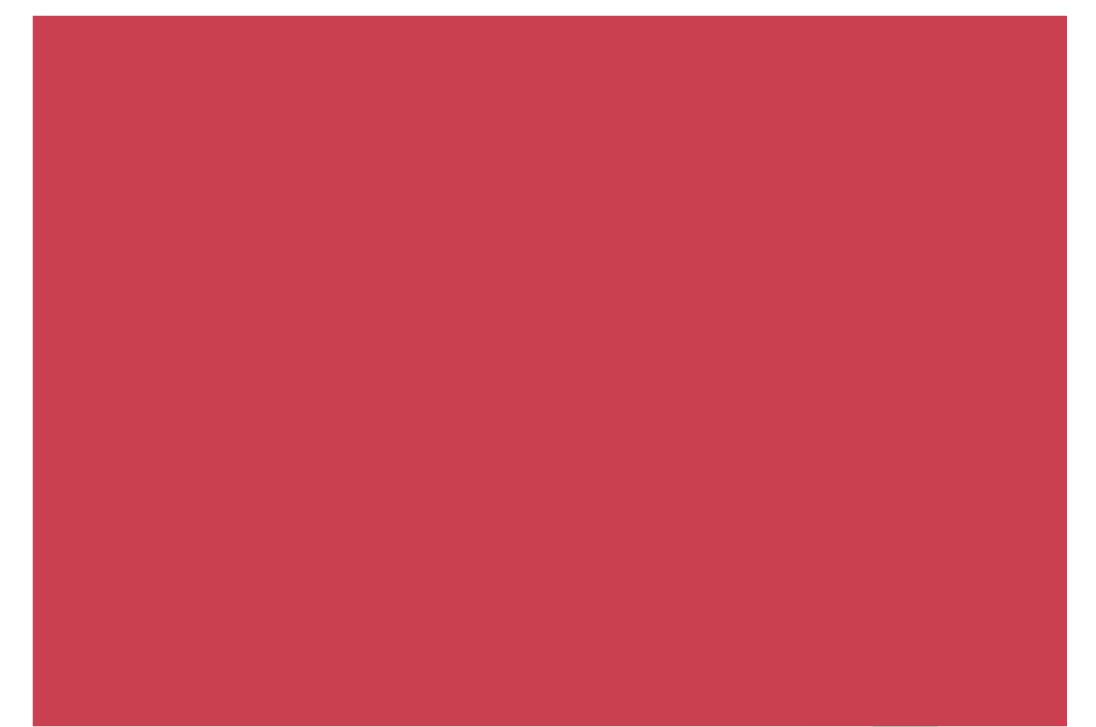
salience

fronto-parietal

default mode



Nodes [on/off]



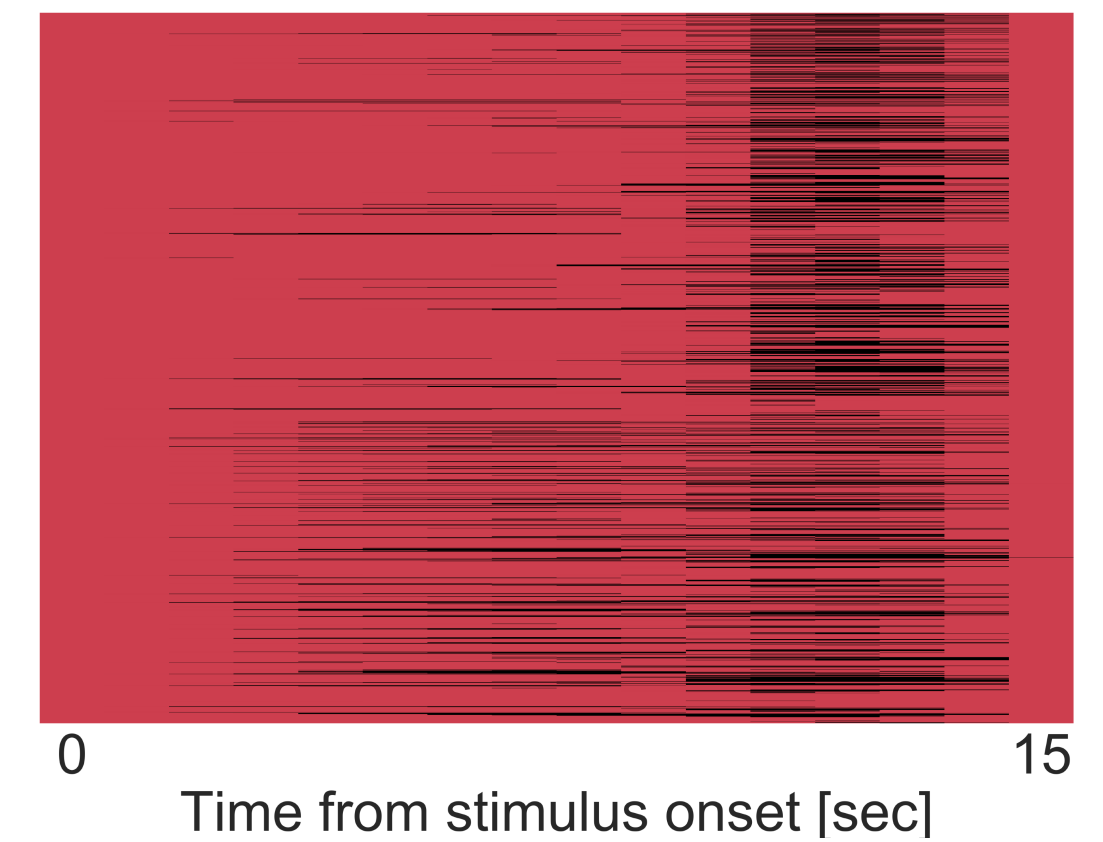
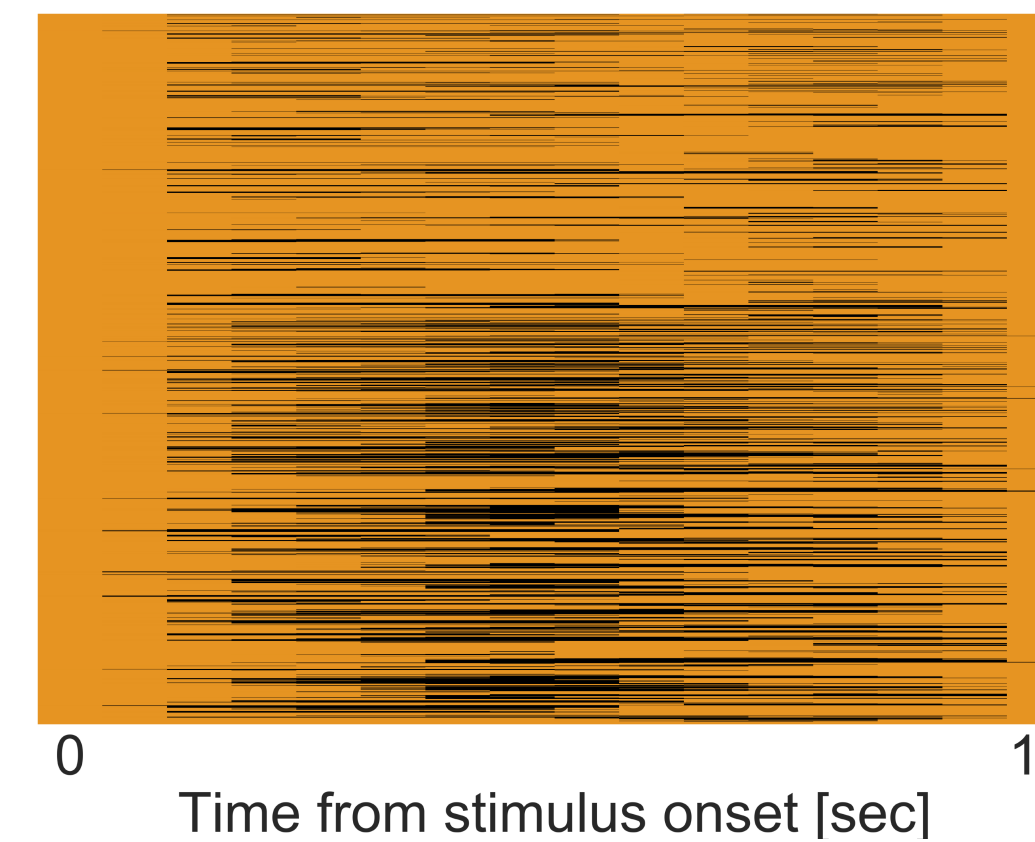
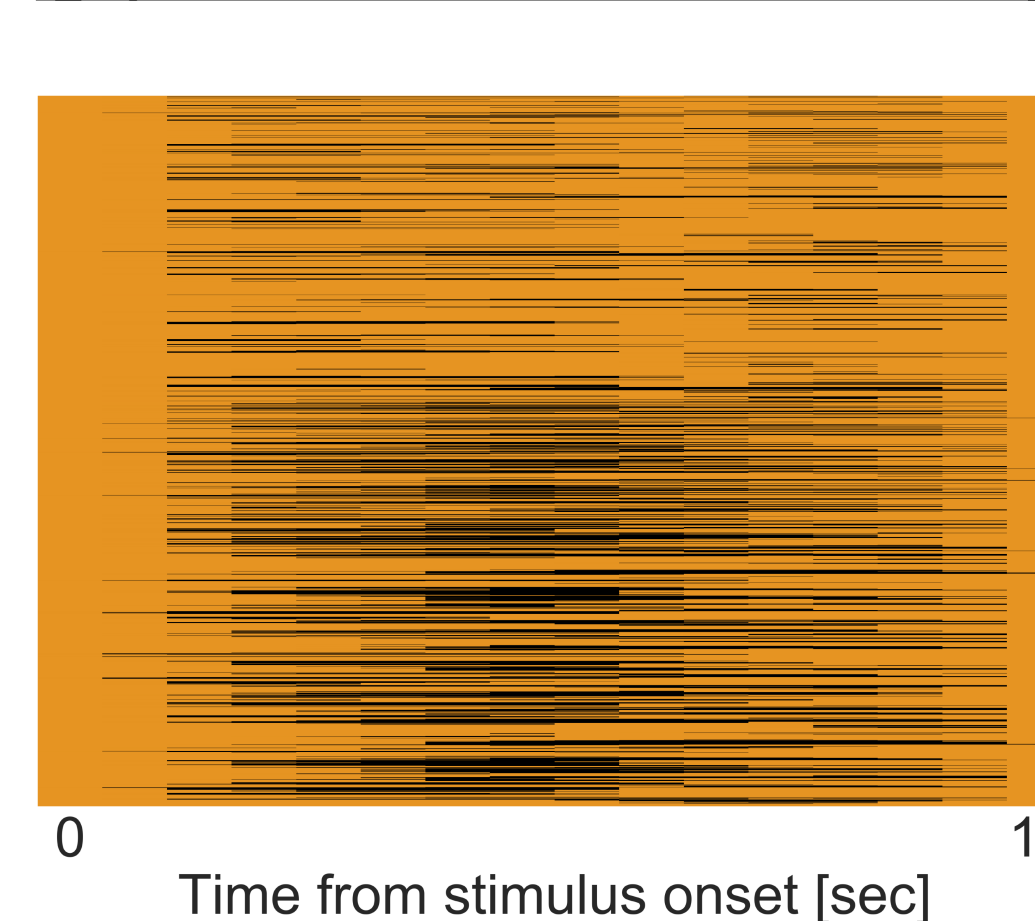
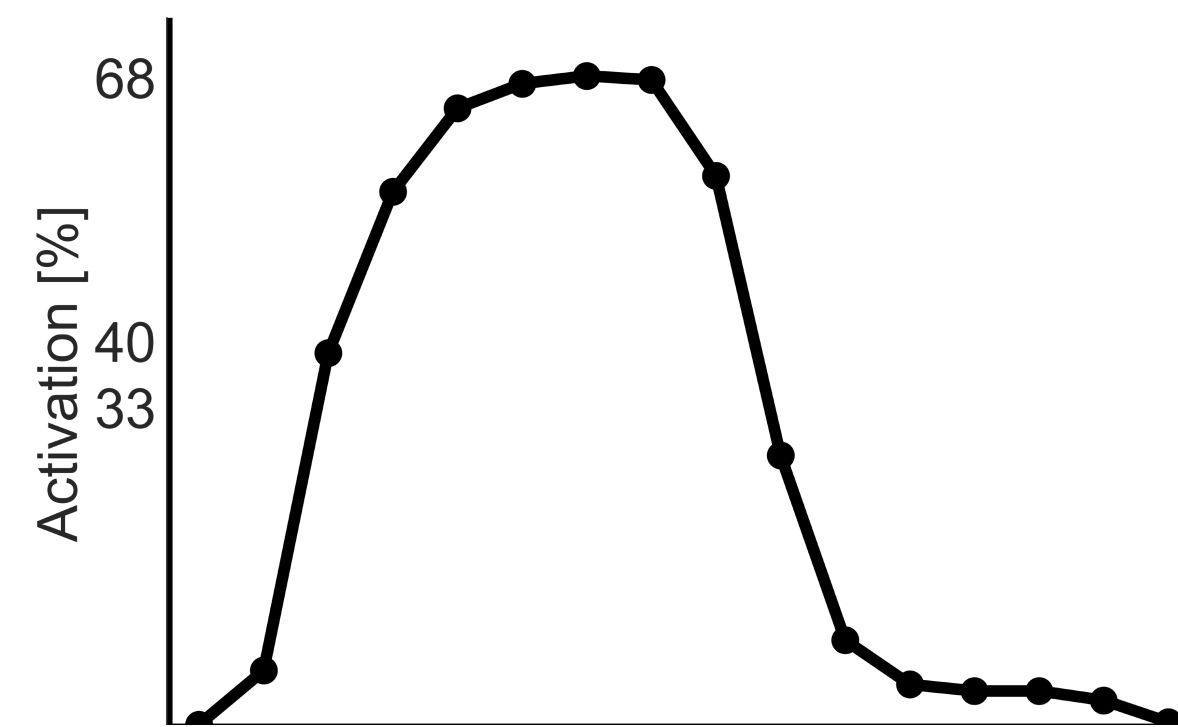
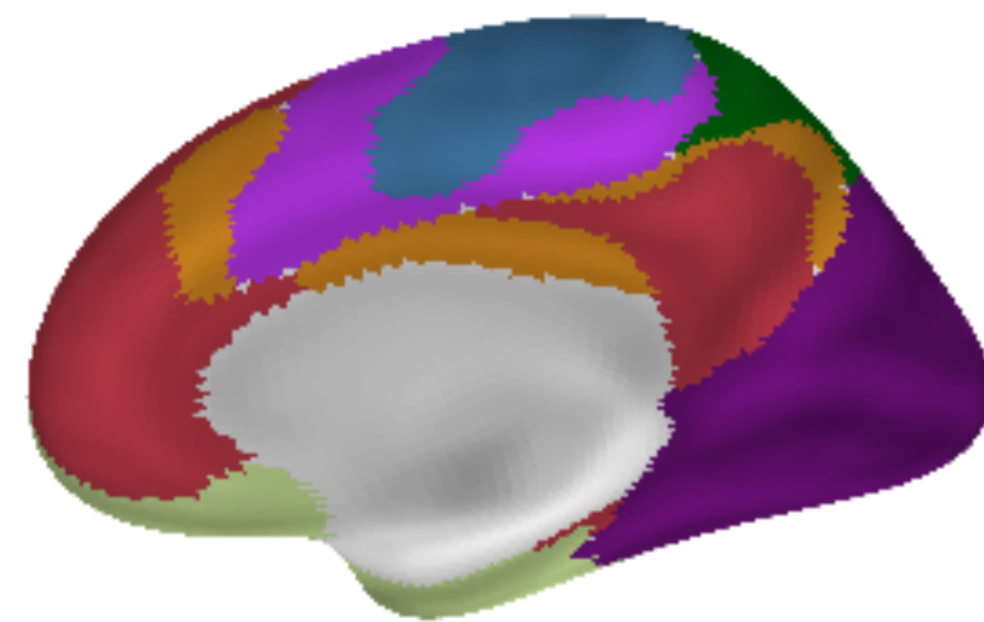
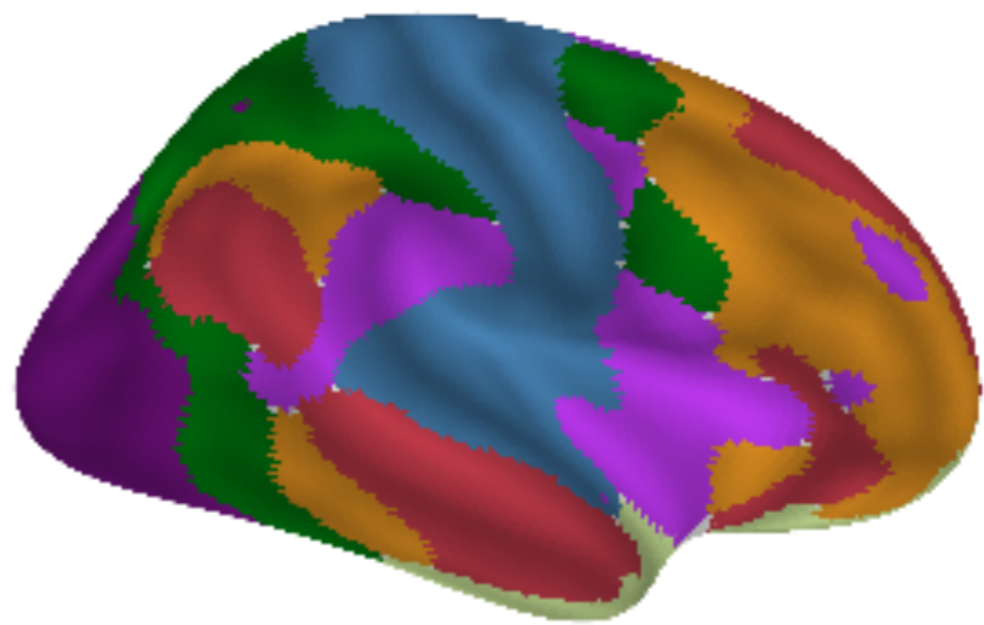
Yeo et al. (2011)
J Neurophysiol

Threat-related cue (CS+)

salience

fronto-parietal

default mode



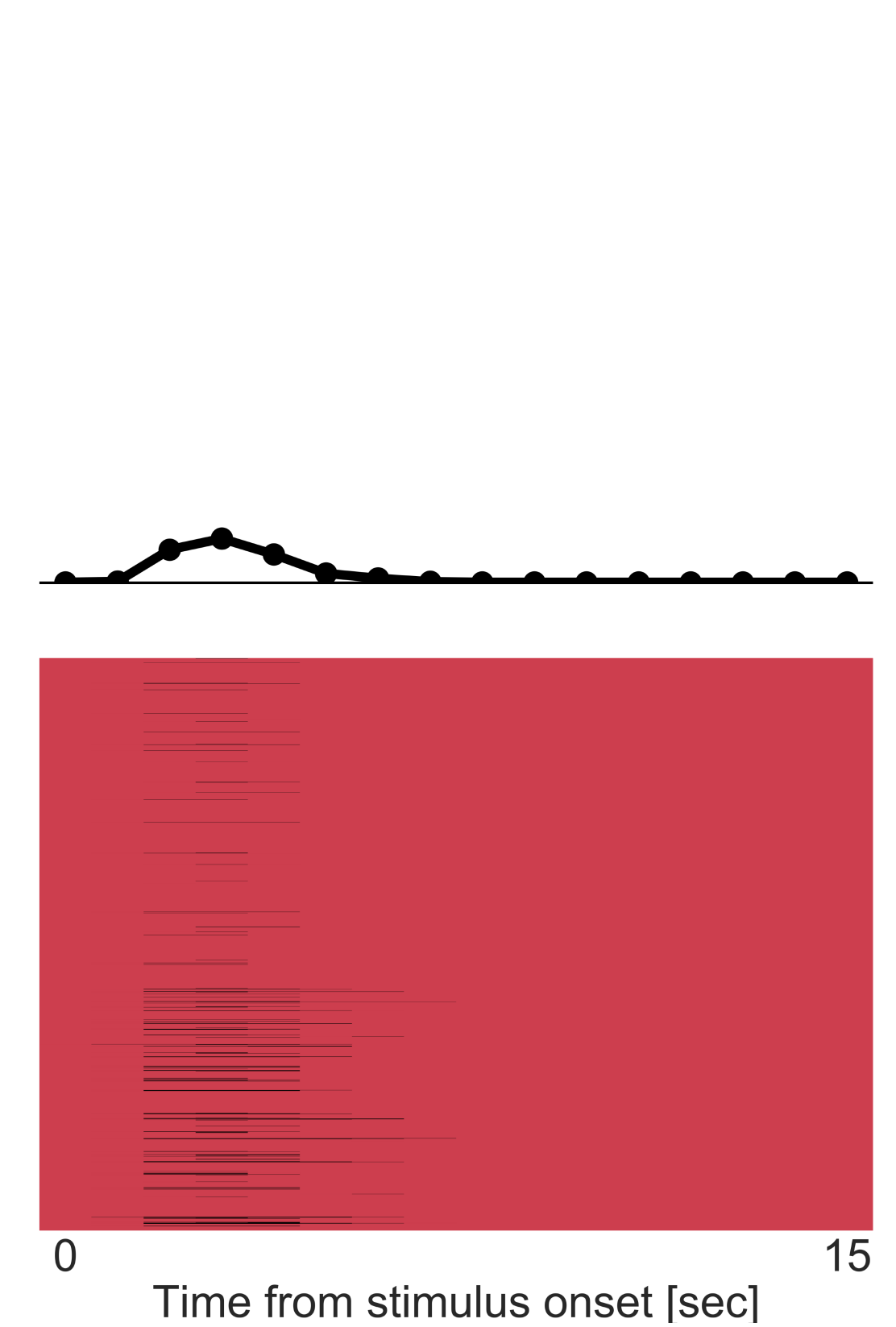
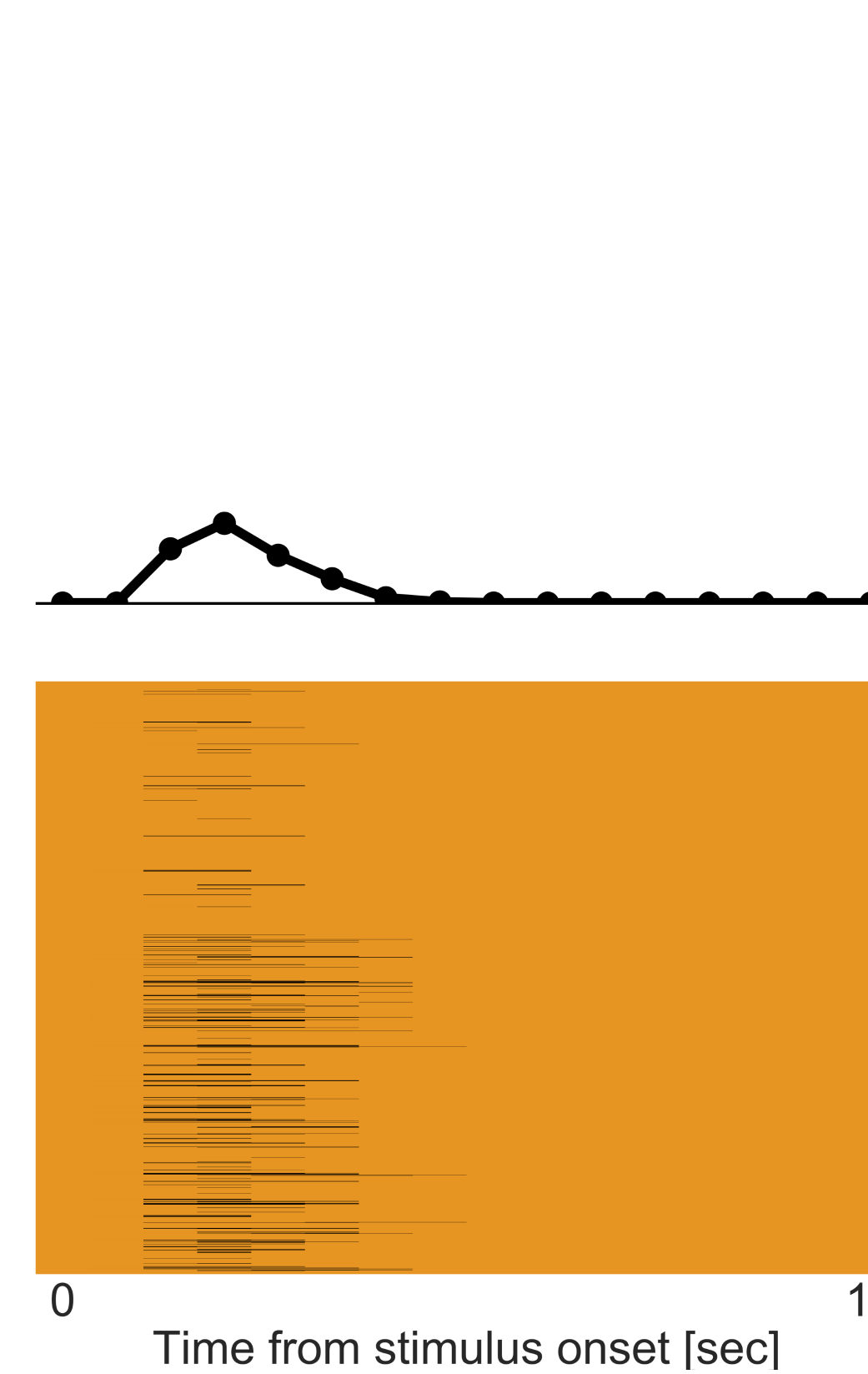
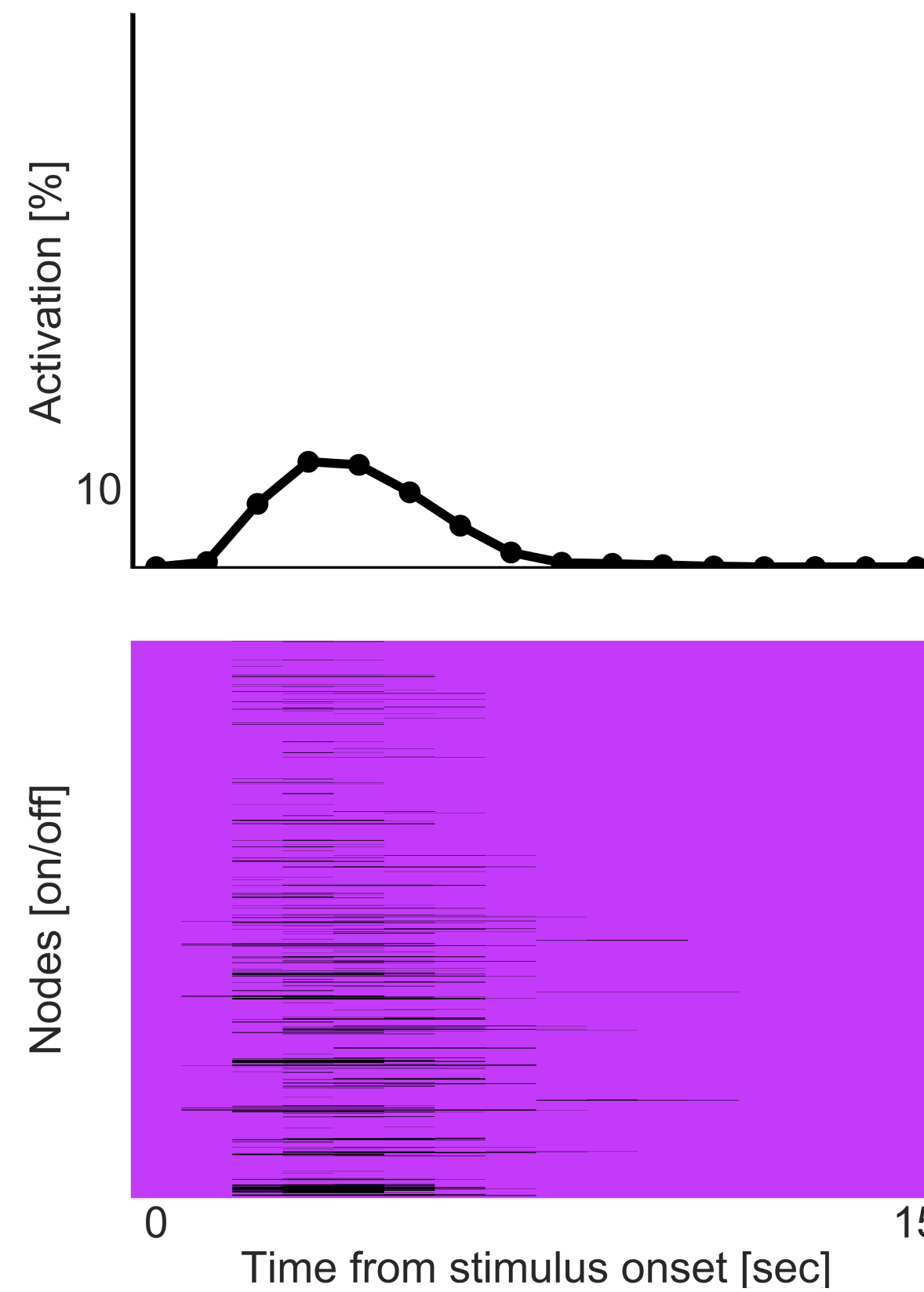
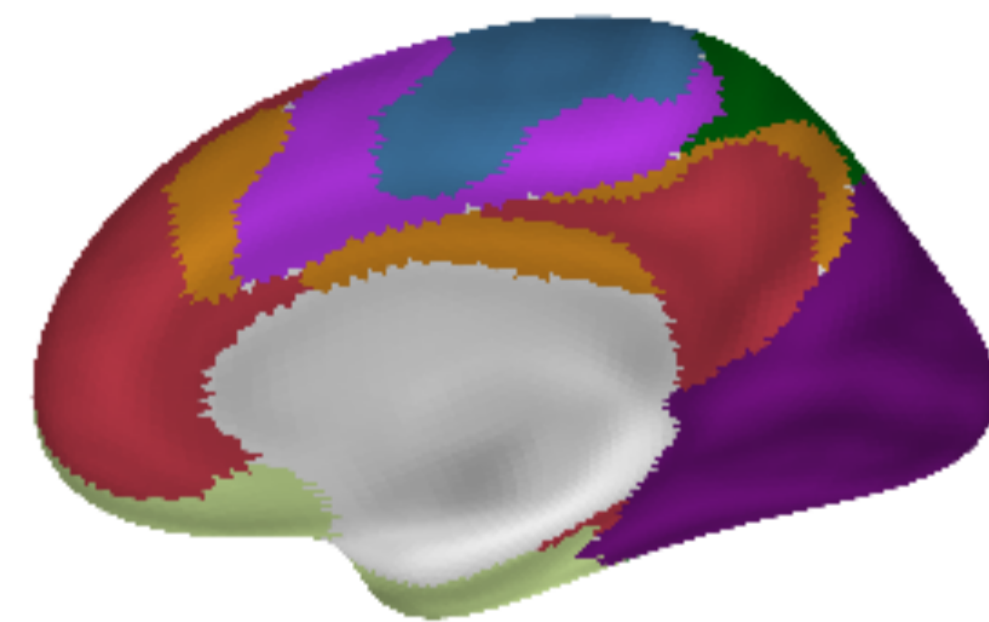
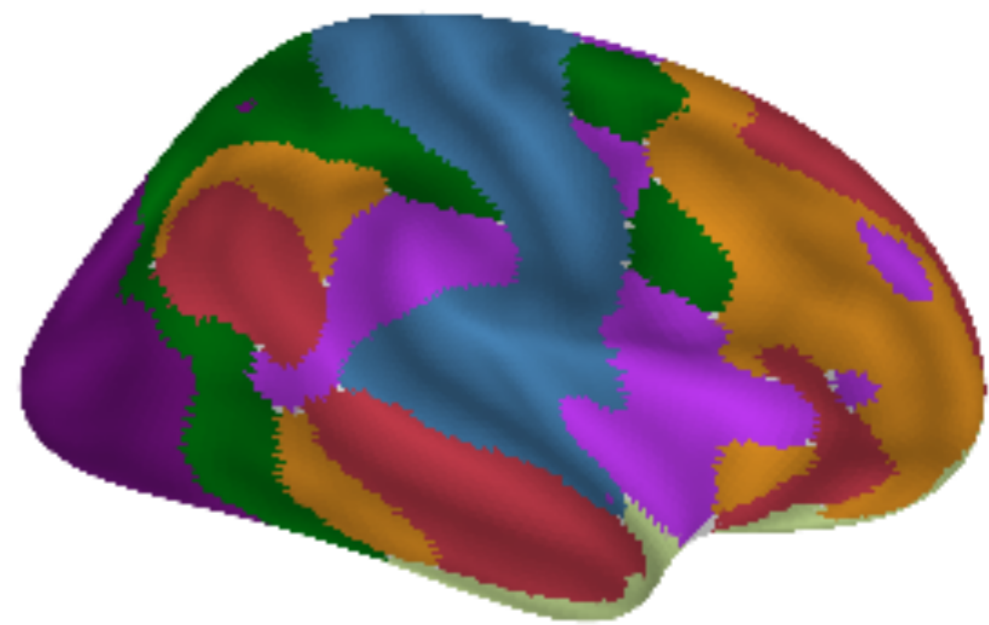
Yeo et al. (2011)
J Neurophysiol

Neutral cue (CS-)

salience

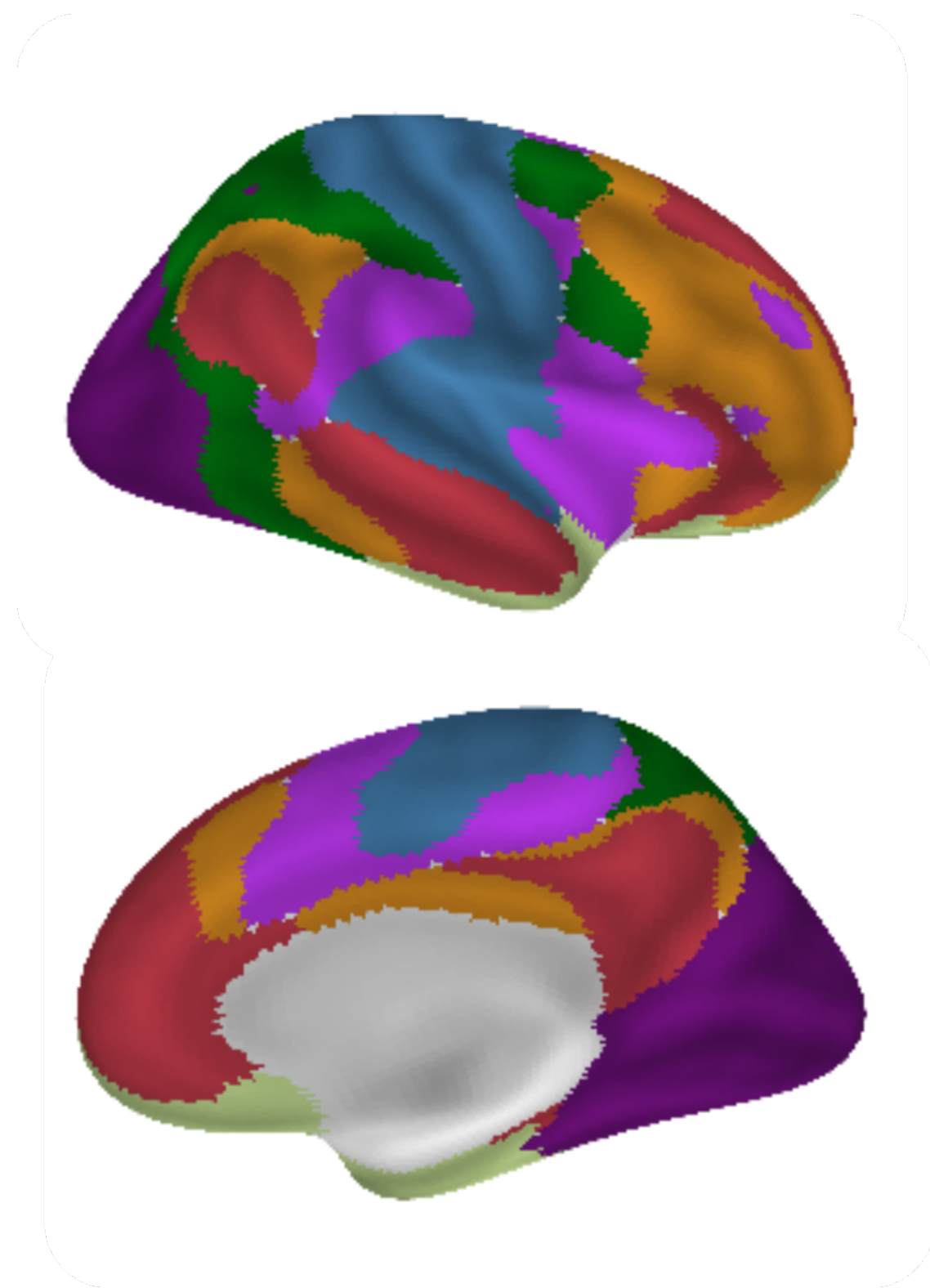
fronto-parietal

default mode

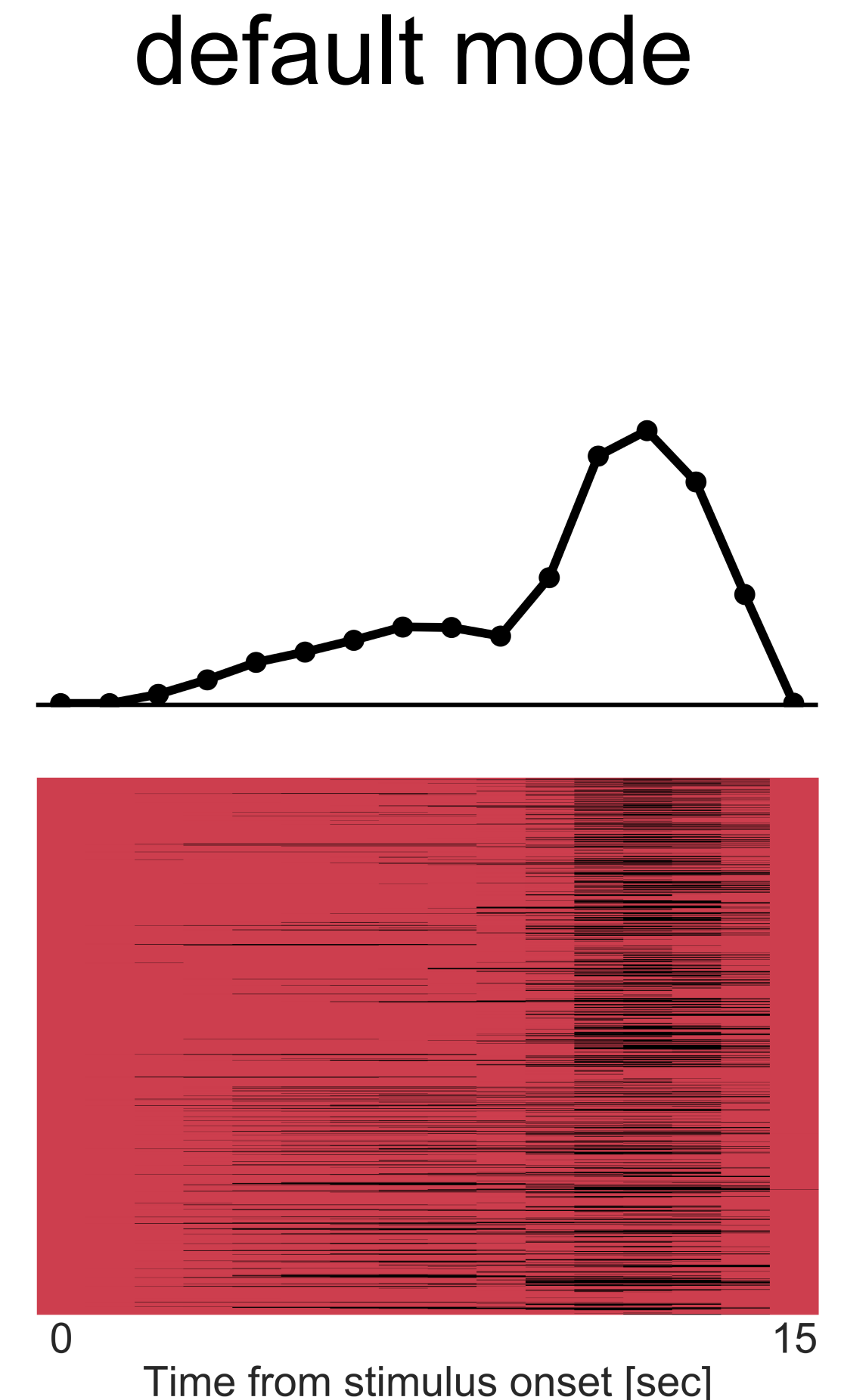
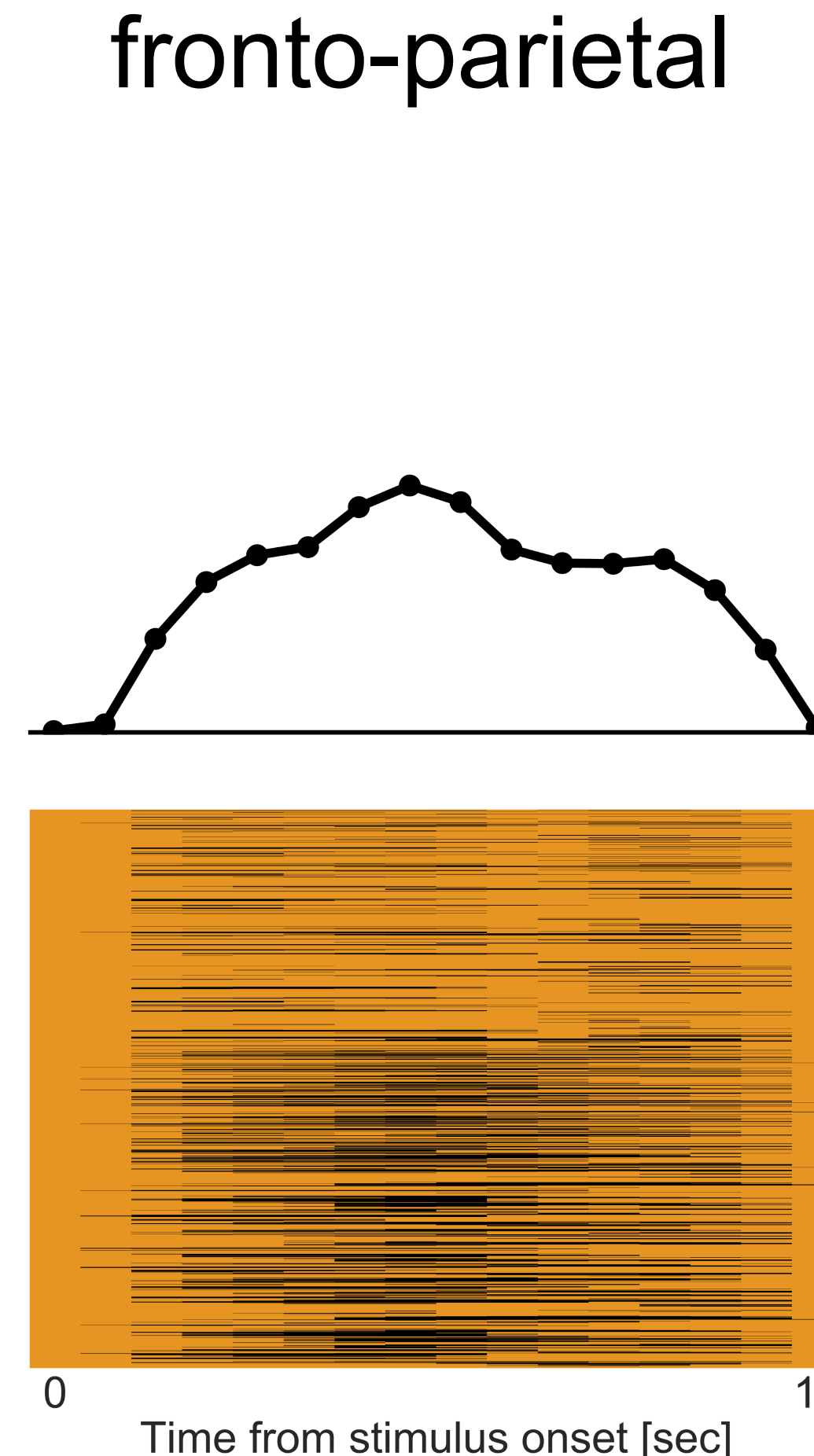
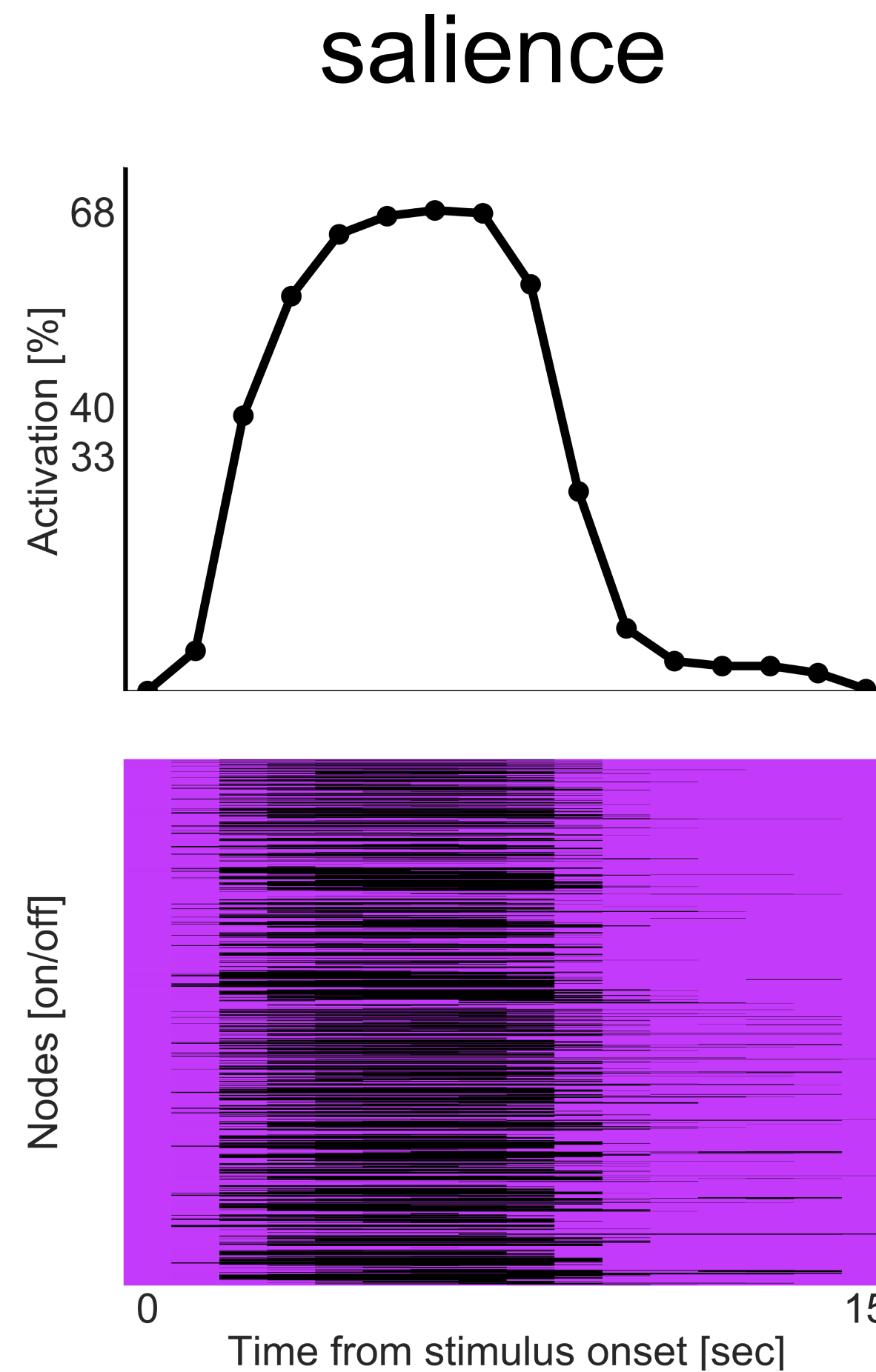


Yeo et al. (2011)
J Neurophysiol

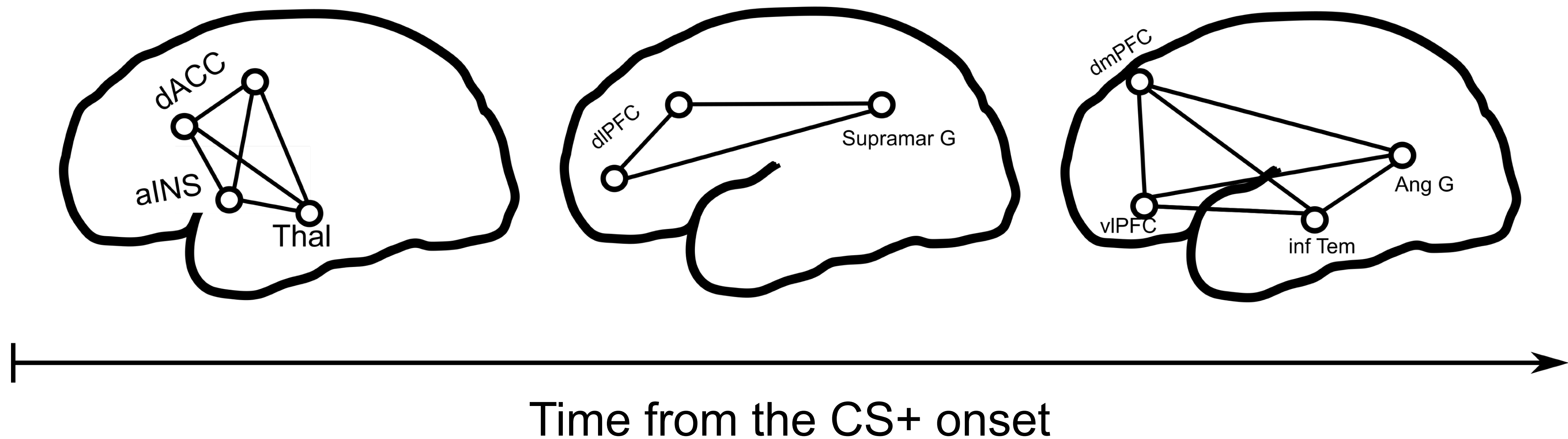
Threat-related cue (CS+) triggered coordinated brain activity that unfolded from salience to default mode regions



Yeo et al. (2011)
J Neurophysiol



Continual elaboration of threat-related information beyond low-level automatic associations?



Acknowledgements

Sabine Oligschlaeger

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Daniel S. Margulies

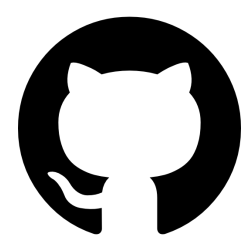
&

Neuroanatomy & Connectivity Group



I am looking for collaboration and projects!
Would you like to get in touch?

baczkowski@cbs.mpg.de



@BmBaczkowski

