

NE ROS S EMS

L. A a a ,<sup>1,2,3</sup> A. G -A a ,<sup>1,2,4</sup> A. O ,<sup>5</sup> M. J. S a ,<sup>1,2</sup> D. H ,<sup>6</sup> Q. E ,<sup>7</sup> B. . M a ,<sup>7,8,9</sup>  
O. F. G a ,<sup>4,10,11</sup> A. S a a ,<sup>4</sup> F. Fa ,<sup>6,12,13</sup> B.<sup>14</sup> and J. A a ,<sup>1,2,3</sup>

<sup>1</sup>Proaction Laboratory, Faculty of Psychology and Education Sciences, University of Coimbra, 3001-802 Coimbra, Portugal

<sup>2</sup>Faculty of Psychology and Education Sciences, University of Coimbra, Coimbra, Portugal

<sup>3</sup>CINEICC, Faculty of Psychology and Education Sciences, University of Coimbra, Coimbra, Portugal

<sup>4</sup>Neuropsychophysiology Laboratory, Research Center in Psychology, School of Psychology, University of Minho, Minho, Portugal

<sup>5</sup>Social and Cognitive Neuroscience Laboratory and Developmental Disorders Program, Center for Health and Biological Sciences, Mackenzie Presbyterian University, Sao Paulo, Brazil

<sup>6</sup>Department of Psychology and Beijing Key Laboratory of Behavior and Mental Health, Peking University, Beijing, China

<sup>7</sup>Department of Brain and Cognitive Sciences, University of Rochester, Rochester, NY, USA  
<sup>8</sup>Center for Mind, Brain, and Media, Massachusetts Institute of Technology, Cambridge, MA, USA

<sup>a</sup>Center for Visual Science, University of Rochester, Rochester, NY, USA  
<sup>b</sup>Department of Neuroscience, University of Rochester, Rochester, NY, USA

<sup>9</sup>Department of Neurosurgery, University of Rochester, Rochester, NY, USA  
<sup>10</sup>Brown College of Health Sciences, Northeastern University, Boston, MA, USA

<sup>10</sup>Bouve College of Health Sciences, Northeastern University, Boston, MA, USA  
<sup>11</sup>Department of Physical Medicine and Rehabilitation, Spaulding Rehabilitation Hospital, Boston, MA, USA

<sup>11</sup>Department of Physical Medicine and Rehabilitation, Spaulding Rehabilitation Hospital, Harvard Medical School, Boston, MA, USA  
<sup>12</sup>PKU-HDRC/McGovern Institute for Brain Research, Peking University, Beijing, China

<sup>12</sup>PKU-IDG/McGovern Institute for Brain Research, Peking University, Beijing, China  
<sup>13</sup>Peking-Tsinghua Center for Life Sciences, Peking University, Beijing, China

<sup>14</sup>State Key Laboratory of Cognitive Neuroscience and Learning, Beijing Normal University, Beijing, China

<sup>1</sup> State Key Laboratory of Cognitive Neuroscience and Learning, Beijing Normal University, Beijing, China

**Keywords:** auditory cortex, neuroimaging, neuronal plasticity, ocular vision, thalamus

Edited by John Foxe  
Received 7 June 20

Received 7 June 2016, revised 5 July 2016, accepted 6 July 2016

A ta t

M-1

## *Participants*

ee e e (13 e 2 e , e e  
 e 20.4 e , e 17-22) 16 e (13 e  
 3 e , e e e 20.1 e , e 18-22) p p e e  
 e p e . p p e e - - e  
 , e e e e e e - - e  
 e e e e e e ( e )  
 e e e e . e e p p e e  
 e e e e e e , e e p p e e  
 90 ( e e e e e e 125 8000 )  
 e e f i e e e ( e , e p ,  
 f i e e p p ). e p p e p e  
 e p e e e e e e . e . e  
 e e e e p p (10 e 10 e ) p -  
 p e e e p e e p e e t . (2015); ee  
 t .. 2015). e p p e e  
 e e e e e e ( e )

e e e e . e e  
e e e e . e e

### MRI Structural image acquisition

e J ee ee e e u J ee 3 e-  
e e . -e 3  
e 3 - p e e e p e  
( : 2530 , : 3.59 , flip : 7 e ee , e :  
256 × 256, e e: 1.33 × 1 × 1.33 , 144 e ,  
e : 8.07 ).

### Preprocessing

e e 5.0 ( e t., 2008; e t., 2012; e e  
t., 2012). e p e e p e  
e , e e e p e ( &  
, 1988), p p e e ( , 2012).  
e e e p ee e e .

### Manual segmentation

e - - ee ( J ) ee e e  
e p e e -e 1- e e e e  
3 e .2.7 ( p:// . e . ; e t., 2012).  
e J e e , e J e e e ( ),  
e p ( ), e e e e e ( ), e e -  
e e e ( ), e p ( ) e  
J e ( J ). e e e ee J , e e -  
p ee, e p J e p e e e e e  
( . 1). J p , e f i e e e e e e  
p t. (1998). e e e f i e e  
e e p , e p e e e e e  
p e e e e e e e . e , e  
e f i e e e e e , e p  
e e e f i e e e e e  
e e e e e e e e e p p e  
e t. (2001) e e e e e e p . e p  
p e e e f i e e e e p fl e e -  
e p e e e e e e e . e e e  
e e e e e e p e e e e e  
e f i e e e e e . e e e e e  
f i e e f i e , e p e e  
e e e e e . e e e e e  
p p e e e e e e e e e -  
. e , e e e e e e e e e -  
t., 2007). e e f i e e e e -  
& (2006). e e e f i e p e e p -  
e. e , e e e e p e e p -  
e p p e e & (2006) e  
e f i e e e J . e e f i e p  
e p e e e p ( ) e e e J . e -  
, e e e e e e e e e e ,  
e e e e e e e e e e e  
p e e e e e e e e e e  
e , e J e e e e e e ( . 1).

### Reliability

p p , e J e e e e e e  
( . ). e e e e e e e e



FIG. 1.   
e e J e e e J . p e e e -  
e e J ; ( ) p ; ( ) ; ( ) J . e p p . ( )  
= -4, = -20 = 2; e p - = -22;  
= -18 = 2; e - = 21,  
= -12 = -7; e J - = 9, = -19  
= -3; e J - = -6, = -22  
= -8; e J - = -6, = -22  
= -2. J e f i e e p p e e e e p p e e  
e e e f i e e p e e e e e p p e e .

e e ( . . ; . . ) e e J e  
e e p e e ) e e e e e p p p  
e J e e e e e e e e e e e e  
e J e e e e e f i e e e e e J  
e e e e e e e e e e e J

,       $\beta$       -e      e    fi    e      e    e  
 $(e \quad : \alpha = 0.95; \quad : \alpha = 0.99; e \quad : \alpha = 0.99;$   
 $\beta \quad : \alpha = 0.98; e \quad : \alpha = 0.98; \quad : \alpha = 0.98; e$   
 $\alpha = 0.96; \quad : \alpha = 0.95; e \quad : \alpha = 0.80;$   
 $\alpha = 0.94; e \quad : \alpha = 0.86; \quad : \alpha = 0.83; \quad e$   
 $< 0.05).$

## *Data analysis*

e fi p e 6( l , p , , , , l )  
 2(e p ee: . e ) 2( p: e . e ) ,  
 4 e fi -p p , e  
 e ee -p p . ,  
 e p e e ee- p e -  
 e e e ee - e e e e p e  
 e e e e e l ( , p , ,  
 l ) p ( e ).

R t

TABLE 1.  $e$  ( $\text{cm}^3$ )  $J$   $e$

$\mu$	$(e^-; \gamma = 15)$	$e^-$	$e^-$	$e^-$	$t$	$e^- t - e$
$\downarrow$	$(e^-; \gamma = 16)$	$e^-$	$(\quad)$	$e^-$	$(\quad)$	$e^-$
$\downarrow$		5.676 (0.735)	6.078 (0.958)	$t_{14} = 4.287^{**}$		
$\downarrow$		5.830 (0.989)	5.806 (0.996)	$t_{15} = 0.278$		
$\downarrow$		1.235 (0.313)	1.358 (0.332)	$t_{14} = 1.115$		
$\downarrow$		1.498 (0.323)	1.458 (0.396)	$t_{15} = 0.414$		
$\downarrow$		0.214 (0.055)	0.235 (0.045)	$t_{14} = 2.025^*$		
$\downarrow$		0.274 (0.092)	0.250 (0.089)	$t_{15} = 1.890$		
$\downarrow$		0.111 (0.036)	0.109 (0.027)	$t_{14} = 0.160$		
$\downarrow$		0.115 (0.019)	0.116 (0.034)	$t_{15} = 0.186$		
$\downarrow$		0.117 (0.035)	0.128 (0.035)	$t_{14} = 1.294$		
$\downarrow$		0.176 (0.038)	0.171 (0.034)	$t_{15} = 0.525$		
$\downarrow$		0.168 (0.025)	0.185 (0.036)	$t_{14} = 2.477^*$		
$\downarrow$		0.193 (0.034)	0.194 (0.040)	$t_{15} = 0.182$		

$\ddagger = 0.06$ ; \*  $< 0.05$ ; \*\*  $< 0.0001$ .

e , e e p e p e -  
e e e e . e -  
p e e e . ) e ee  
e , e p , e , e . -  
, e p e e e e -  
e e e e e p e -  
e e e , e e e p e -  
( p e e e ) e e -  
e fe . e e e p e -  
e p e -

