Trends in Cognitive Sciences

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Feature Review

Neurocognitive Basis of Racial Ingroup Bias in Empathy

[illegible][1,*]

Racial discrimination in social behavior, although disapproved of by many contemporary cultures, has been widely reported. Because empathy plays a key functional role in social behavior, brain imaging researchers have extensively investigated the neurocognitive underpinnings of racial ingroup bias in empathy. This research has revealed consistent evidence for increased neural responses to the perceived pain of same-race compared with other-race individuals in multiple brain regions and across multiple time-windows. Researchers have also examined neurocognitive, sociocultural, and environmental influences on racial ingroup bias in empathic neural responses, as well as explored possible interventions to reduce racial ingroup bias in empathic brain activity. These findings have important implications for understanding racial ingroup favoritism in social behavior and for improving interracial communication.

[illegible]

Racial Bias in Social Behavior and Empathy

[illegible] [1,2] [illegible] (Box 1). [illegible] [3] [illegible] (e.g., [illegible]) [4,5] [illegible]

[illegible] **empathy** (Figure 1) [illegible] [6–10] [illegible] (Box 1) [illegible]

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Anterior cingulate cortex (ACC):

Anterior insula (AI):

Blood oxygen level-dependent (BOLD) responses:

Electroencephalography (EEG)/event-related potential (ERP):

Empathy:

fMRI:

Ingroup favoritism:

Magnetoencephalography (MEG):

[illegible] **blood oxygen level-dependent (BOLD) responses** [illegible] [13–18] [illegible] [1[illegible]–21] [illegible] [22,23].

[illegible] **anterior cingulate cortex (ACC)**, [illegible] ([illegible]), **anterior insula (AI)**, [illegible] ( ), [illegible]

34 ... 35 ... **medial prefrontal cortex (mPFC)**, ...

... 15,3 ... 20,22,31 ...

... 3 ... −10 ...

... 4) ...

3.

... 31 ... 12 ... 130 ...

... 3 ... 34 ... 11 ...

4\.

[illegible]

Racial Ingroup Bias in Empathic Brain Activity

[illegible]

[illegible]

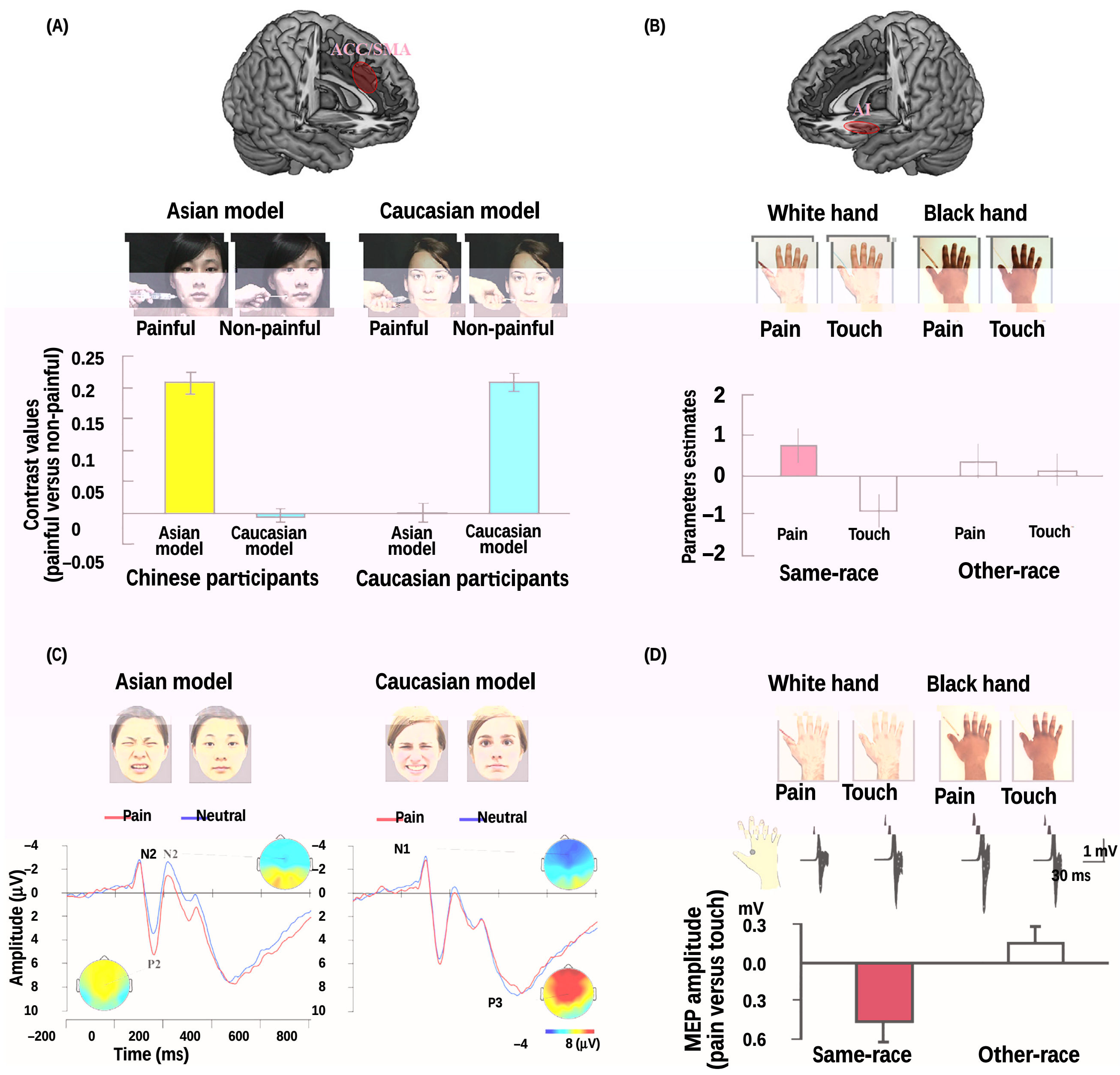

Figure 1. [illegible]

(See figure legend on the bottom of the next page.)

2 2 44 4

2 4 0–140 1) 50

1 F (13–30) 300–1500 51 F / fi

transcranial magnetic stimulation 52

fi (Fig 1) fi

(1 ,1 ,1 3 34)

( )

Mechanisms of Racial Ingroup Bias in Empathic Brain Activity

[illegible] 1 0 [illegible]

[illegible] 100–120 [illegible] 1) [illegible] 4 [illegible]

[illegible]

[illegible] 45 [illegible]

[illegible] 2 [illegible] 140–200 [illegible] (Fig. 2) [illegible]

[illegible] **oxytocin** [illegible] 2 [illegible] 44 [illegible] (OXTR rs53576) 3 [illegible] F/F [illegible] OXTR rs53576 [illegible] F/F [illegible] (Fig. 2) [illegible] F/F [illegible]

[illegible]

[illegible] **ingroup favoritism** [illegible] 4 [illegible]

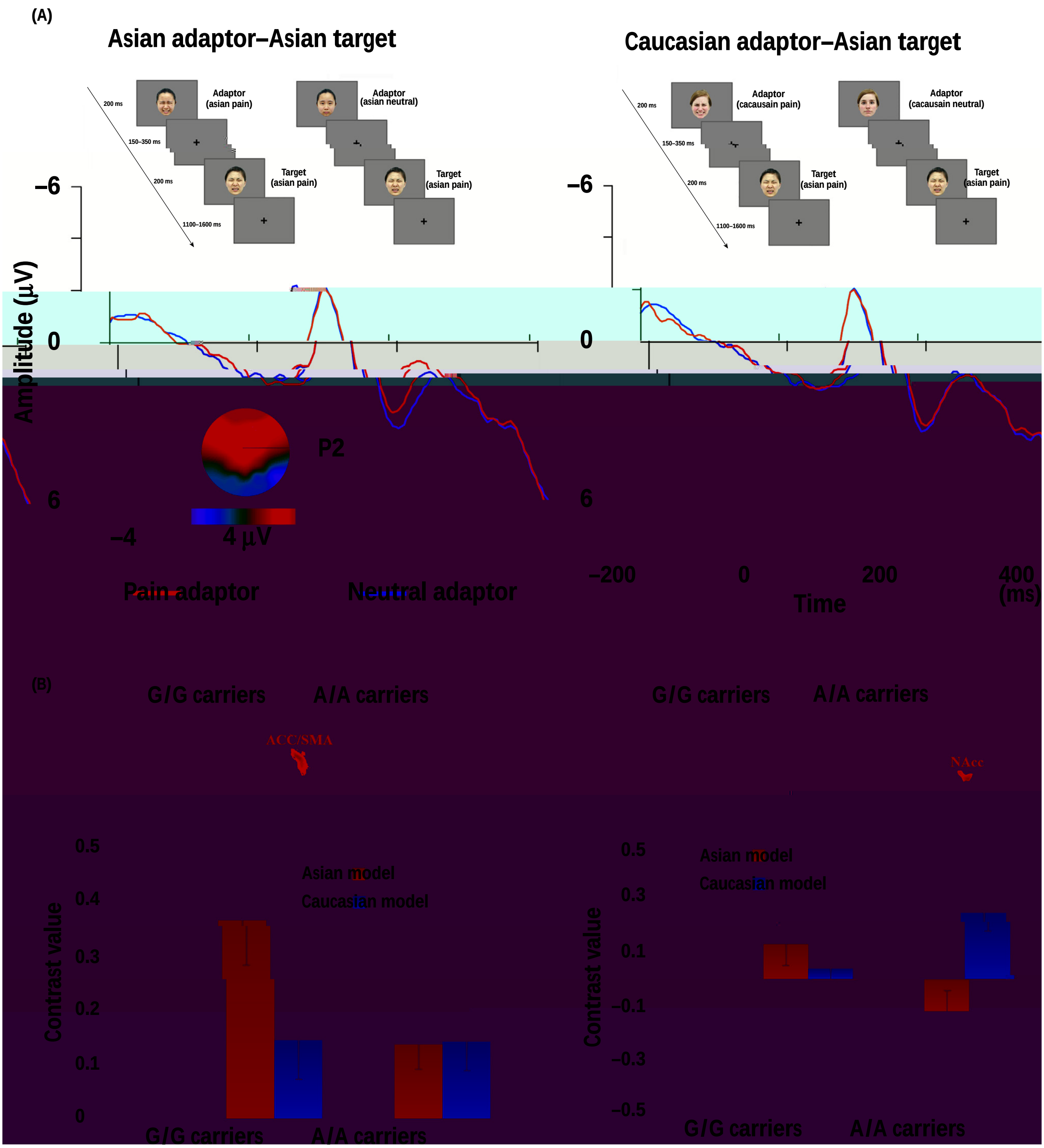

Figure 2. [illegible]

(See figure legend on the bottom of the next page.)

[illegible]

[illegible]

[illegible]

[illegible]

Overcome Racial Ingroup Bias in Empathic Brain Activity

[illegible]

[illegible]

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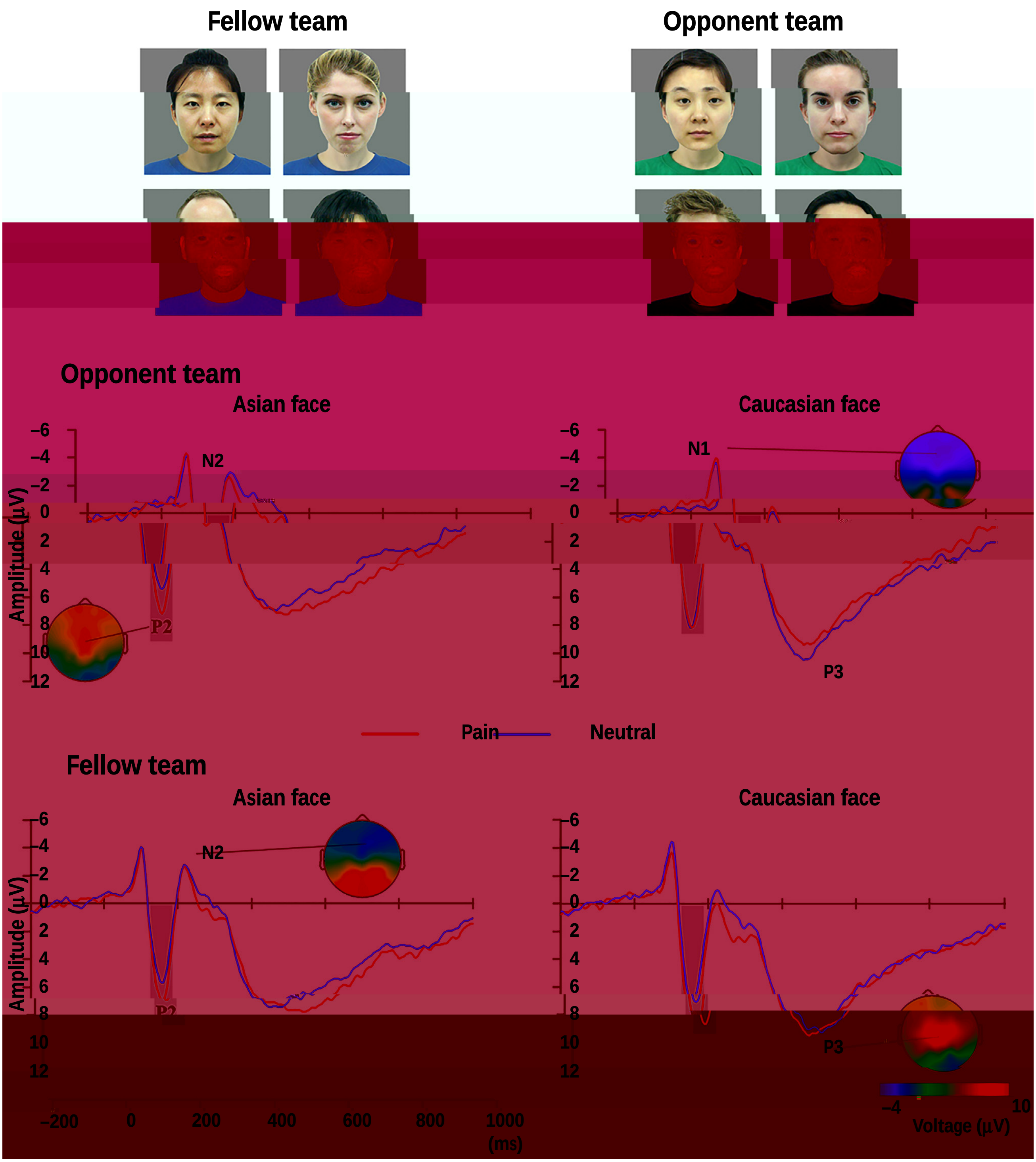

Trends in Cognitive Sciences

Figure 3. [illegible]

Concluding Remarks

[illegible]

[illegible] (2) [illegible] 1, 1, 1 [illegible] 52 [illegible] 34, 5 [illegible] 3, 44–4, 2 [illegible]

[illegible] 15 [illegible] 15 [illegible] 25 [illegible] 0 [illegible] 31, 34, 1 [illegible]

[illegible]

[illegible]

[illegible]

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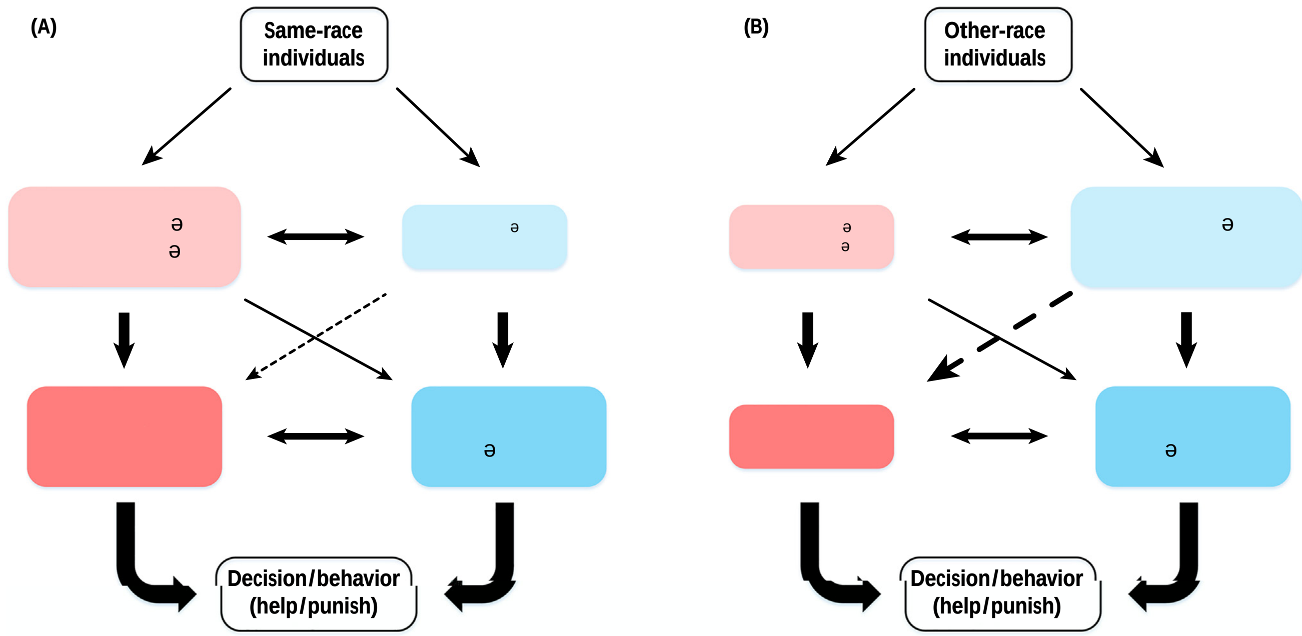

Figure 4.

magnetoencephalography (MEG)

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