

Department of Otolaryngology-Head and Neck Surgery, Wayne State University, School of Medicine, 4201 Saint Antoine, Detroit, MI 48201, USA
Department of Communication Sciences & Disorders, Wayne State University, College of Liberal Arts & Sciences, 60 Farnsworth St., Detroit, MI 48202, USA
Department of Psychology, McGovern Institute for Brain Research at PKU, Key Laboratory on Machine Perception (Ministry of Education), Peking

50%

B, 1981; ..., 1993).

..., 2012; ..., 2010).

fi), B (

2011; V ..., 2011), (A)(B ..., 2008; ..., 2004; 2011; ..., 2011; ..., 2006).

A

2012), (..., 2004; ..., 2012 ; 2002; ..., 2010).

2004; ..., 1993; ..., 2002; 2010).

(A)

A fi

Fig. 1.

(+), (-), (+) (A), 5-6, A, fi

10 16

(0.25-0.75 A), 50%

fi

(8-16, 105-110 B, 2), A 50%

(. 2 -), (. 2A-B).

2.2. Testing of limbic dysfunctions

fi

(, 2012 ;

, 2002; , 1994; , 2010).

2009; , 1998; , 2013).

(A , 2009; , 2009;

, 2009; , 2010; , 2006;

., 2007),
 A
 (., 2013).
 (., 2011).
 (., 2009; ., 2009; ., 2010) (B
 ., 2008; ., 2001, 2006) A
 (., 2011).
 A
 (., 2013).
 (., 2011).
 (., 2011, 2011).
 (A ., 2009; ., 2004;
 2006; ., 2007)

(., c-fos
 A
 (W
 (W
 (., 2003).
 (., 2003).
 (., 2002).
 (., 2002).
 10 125–129 B 4
 62.29 54.31 69.18, fi
 72.63
 60.90 77.14 (., 2003).
 (., 2003).
 (., 2003).
 A (., 3 4).

3. Neural correlates of noise-induced tinnitus in auditor structures

3.1. Increased FLI in auditory brain structures of hamsters with tinnitus

C-fos
 c-fos
 (A ., 2014; ., 2014;
 ., 2015).
 (., 1998; ., 2009; B ., 2014;
 ., 2010).
 (., 2009; ., 2013; ., 2003).
 c-fos

(., 2003).
 (., 1991).
 (B ., 2003).
 (., 2012; ., 2008).
 (., 2011; ., 2010).
 (., 2011; V ., 2011).
 A

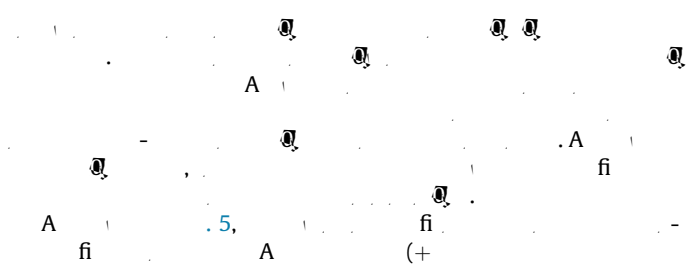


Fig. 6. A–

Fig. 7. A–

4.2. Increased spontaneous firing in the AMG of animals with tinnitus

A

W (, 2006). A fi (, 1990). A (, 2009; , 2005; , 1997; , 2003). A (, 2001). (, 2001). (, 2000).

A -A A A .A 3.3, 5 .11 fi

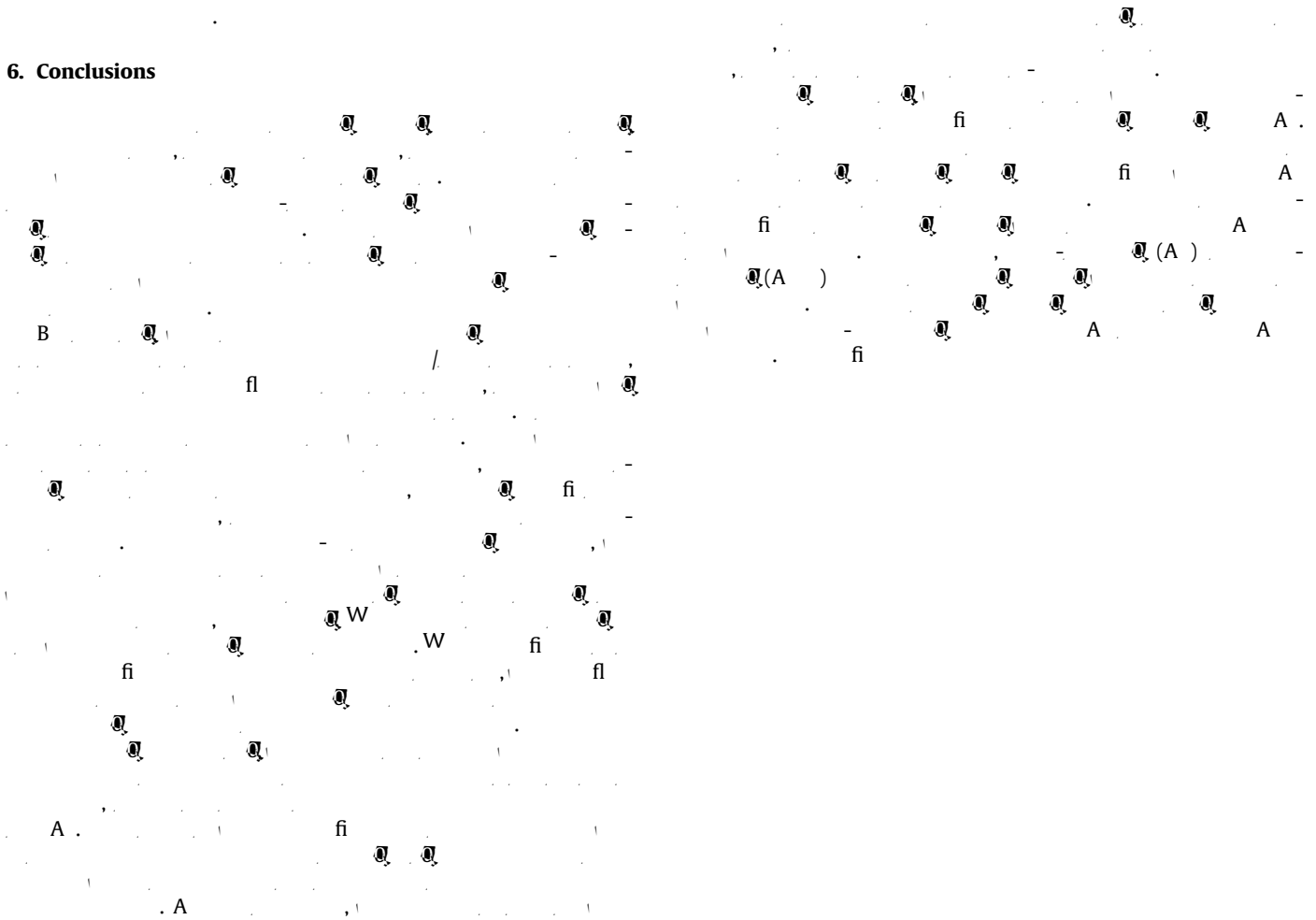
B (.11A). A 2 6 A (.11B-).

(, 1998). A (A (, 1998; , 2001). (, 1987; , 2002). A A A A

A A W (-) (+). A (+) A

(, 2015), . . .

6. Conclusions



18, 2592–2601.

A., A., 1989.

B., A., 23, 53–62.

B., A., B., 2001. A

54–64.

B., A., 2008.

B., B., B., 86, 2564–2578.

B., A., A., 2008. A

B., A., 265, 279–285.

B., B., A., W., 2013. A

213, 188–195.

B., B., B., V.A., 2015. B

.00415 02014.

B., 1992.

B., 2014.

B., 12, 2493–2503.

B., 312, 48–59.

B., 2008.

1576–1588.

B., B., A., 2002.

.22, 2383–2390.

A., 2004.

B., 162–170.

15, 398–405.

A., A., fi, 2014.

B., W., 2007. B

W, 172, 726–730.

fi, 2009.

91, 382–392.

2012. A

A., A., B., 2009.

140, 403–405.

V, V, V, A., 2006.

68, 48–54.

2006. A

A., W., B., 1995. fi

B., 2012.

ABA

223, 269–276.

V., 2003.

17, 2703–2715.

A., 2001.

3271–3281.

2004.

27, 676–682.

A., A., 2009. B

76, 111–118.

B., V, W.A., A., 2011.

470, 101–104.

A., B., 2011. A

25, 1384–1392.

A., A., A., W., V, 2013.

A

37, 901–909.

B, 1998.

A 15

325–329.

W., A., 2010.

104, 3361–3370.

A

2007. B

2007, 80904.

2004.

fi

A., 43, 218–226.

1993.

B., A., 27, 19–27.

W, B., 2011.

B

11, 130.

B., 2012.

81, 324–326.

W

2012.

7, 37733.

2007.

411, 138–142.

2011. A

B

43, 577–589.

A., 2002.

170, 83–95.

W, V., A, 2009.

B

47, 523–528.

W, B

1981.

85, 204–216.

W

2005.

21, 1943–1956.

B., W

2006.

86, 160–163.

2015.

517,

284–292.

2004.

B

96–107.

B

1988.

A., 2015.

B

102, 811–822.

6 (29), 1–17.

A., 1992.

59, 213–223.

A., 2011.

A., 2010. B

fi

1323–1332.

A., 2015.

165,

589, 200–206.

2000.

fi

A

120, 750–756.

B., 2012.

W,

2011.

-43

194, 309–325.

B., 2009.

B

A., 46, 213–218.

A., 1990.

10, 1043–1054.

2002.

A A A

13, 339–341.

1994.

A

19, 50–54.

B., 2014.

272,

34–57.

A., 2012.

32, 16141–16148.

W,

2004. A

(-A).

190, 109–114.

A., W

B.W., 1998.

50, 114–120.

A.V., 2012.

1485, 54-62. fi . B W W B. A. 2014.
A A 15, 353-372.
fi 2014. B
2012.
. 522, 16-20.
. V.
. 2012. B
. 29, 430-444.
. A. 2001.
. 21, 135.
. A. 1987. A
. B. A. 1993. V 262, 59-77.
421-427. 103,
. A., B B., 2009.
63-74. 257,
. 1991.
14, 421-451. A
. A. 1998.
. W 2011. 393, 467-470.
. 192, 753-760.
. 2013. fi
. ? B.
. W 2007.
. A A A 18, 257-266.
. 5- W B. 2002.
. A A A 13, 323-331.
. 2003.
. 183, 137-153.
. A. 2005.
. 25, 699-705.
. A. 2006.
. W 2012. fi 17, 559-563.
. 290, 64-71.
. 1997.
. 105, 105-118.
. A 2015.
. 289, 43-55.
. 2010.
. B A 15, 187-193.
. 2015.
. 2013.
. 8, 75011.
. B. W. A., 2009.
. 66, 964-971.
. A W 2009.
. A. 44, 312-318.
. A. A. A. 2000.
. A. A A A 911, 369-391.
. 1997.
. 2003.
985, 50-58. 17, 8645-8655.
2010. A. 30, 14972-14979.
. 1989.
456-471. 282,
. 2015.
. B B 2009. 62, 119-157.

. W 2006.
. 49, 150-160.
. 2003. A
. 180, 39-50.
. A. 2003.
. 83, 803-834.
. B.
. W B., 2013.
. B 34, 233-240.
. A. A fi 2013.
. 2013. 8, 76488.
. B 1510, 48-62.
. B 2008. B.
. A., B. A. 2009. 118, 491-500.
. 15, 5-50.
. V. 2007.
. 52, 215-227.
. W W., 2000. A
. W 147, 200-220.
. B 2007.
. A 46, 208-216.
. A A B. 2013.
219, 224-232.
. B A.
. 2006. fi
VBA, 2013. A B V 120, 188-195.
V W. 2011. B fi A
W 1997. 31, 6639-6645.
W 8, 725-728.
W B W 2003.
W B. W B 153, 649-654.
W 2006.
W 17, 1487-1491.
W A. B. 2014.
W 34, 6182-6189.
W B 2015.
W A. 2006. 7, 19-27.
W 1991. 212, 1-8.
W 57B /6 BA/ 53, 78-94.
W W. V 2007.
W fi 2007. 5 2, 167.
W B. B 2011. A A. 108,
14974 (.) (.) 30 75(338. .)-(5)27.9(7.6(1)33.4(9) 000 0

... B ... 2011 .
186, 48–56.
... 2011 .
193, 143–153.
... W ...
2011 . A ... 5-
180, 75–84.
... 2014.
B ... 2014, 724195.
... 2001. ...
: 24
... A ... 40, 133–140.
... 2006.
... 1999. ... 47, 282–288.
V ...