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**Research Report**
**Identification of forkhead transcription factors in cortical and dopaminergic areas of the adult murine brain**
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**Abbreviations:**

ILF1, interleukin enhancer binding factor 1

mDA, midbrain dopamine

SNc, substantia nigra pars compacta

VTA, ventral tegmental area

**ABSTRACT**

The murine forkhead family of transcription factors consists of over 30 members, the vast majority of which is important in embryonic development. Implicated in processes such as proliferation, differentiation and survival, forkhead factors show highly restricted expression patterns. In search for forkhead genes expressed in specific neural systems, we identified multiple family members. We performed a detailed expression analysis for Foxj2, Foxk1 and the murine orthologue of the human ILF1 gene, which show a remarkable preference for complex cortical structures. In addition, a comprehensive examination of forkhead gene expression in dopamine neurons of the ventral tegmental area and substantia nigra pars compacta, revealed Ilf1 as a novel transcriptional regulator in midbrain dopamine neurons. These forkhead transcription factors may play a role in maintenance and survival of developing and adult neurons.

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**1. Introduction**

The forkhead gene family consists of transcription factors sharing a highly conserved DNA binding domain, named after the first forkhead gene identified in *Drosophila* (Lai et

al., 1991; Weigel and Jackle, 1990; Weigel et al., 1989). Thus far, over 30 forkhead factors have been identified in mice, conserved across a wide range of species, and many of which are important for embryonic development (Carlsson and Mahlapuu, 2002; Kaufmann and Knochel, 1996). In the

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**A**

SET	FORWARD PRIMER	REVERSE PRIMER	SUBFAMILIES	ISOLATED GENES
A	TSAYCRYSATGGCYATCCAG	GGGCHVCTWCTGGRCST	Foxa- b- f	Foxb1, Foxb2
B	AWMGCBCYATCRYATGGC	GGCAAGGRCARCTAYTGGA	Foxc- d- g- q	-
C	GMCAARCCMCCMTAYWCCTAC	CTGGGCSKTGSATSYSAGC	Foxa- h	-
D	AAGCCACSSTACWSCTATG	CACAACCTBTCYYTKAACM	Foxk- j	Foxk1, Ilf1, Foxj1, Foxj2
E	MRARGCCVMYCTACTCTTA	GCTGGMAGAAWYSYVTKCG	Foxm- n- l	Foxl2
F	CTSACHYTSKCSAGATCTACGA	CTTGGTGGATSM TSAAYCCMGAK	Foxo	Foxo1, Foxo3, Foxo4, Foxo6
G	GACCHCCHTTYACHTATGC	GCAGTRTGGACHGTRGAYGA	Foxp	Foxp1, Foxp2
H	CGGCCACTACAGCGTGGGAAGC	CGGCTCAGGCTGCAAGCCCAAC	Foxe	-

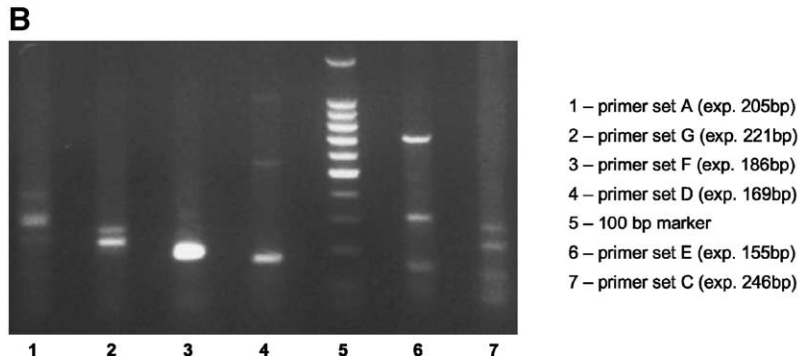


Fig. 1.

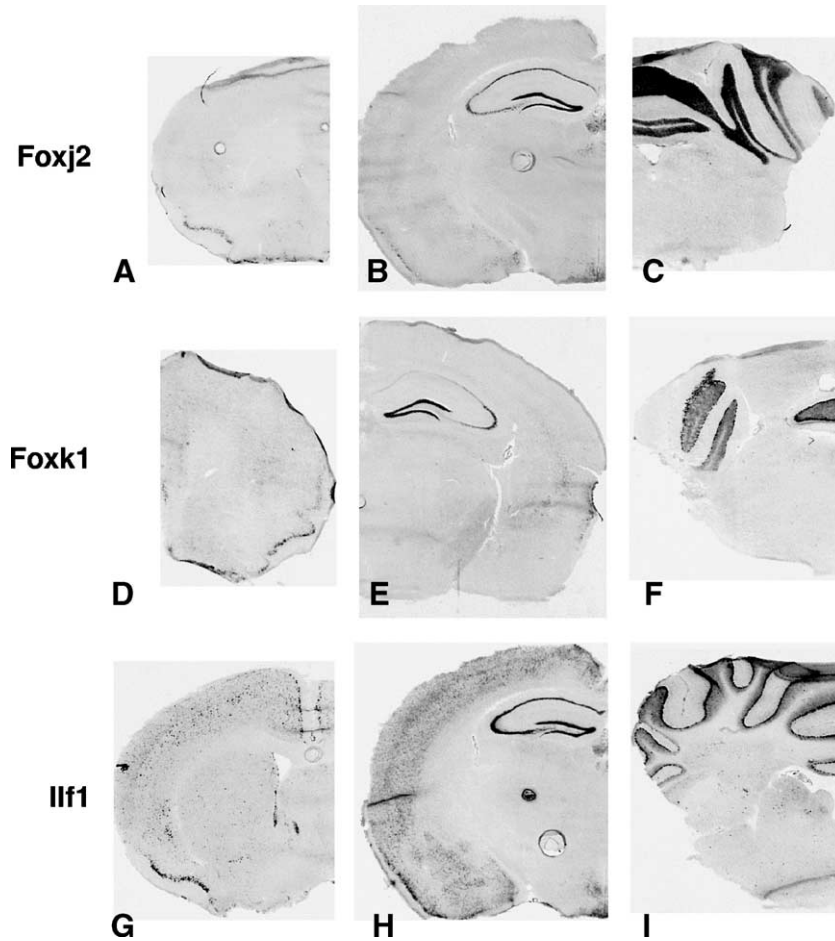


Fig. 2.

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