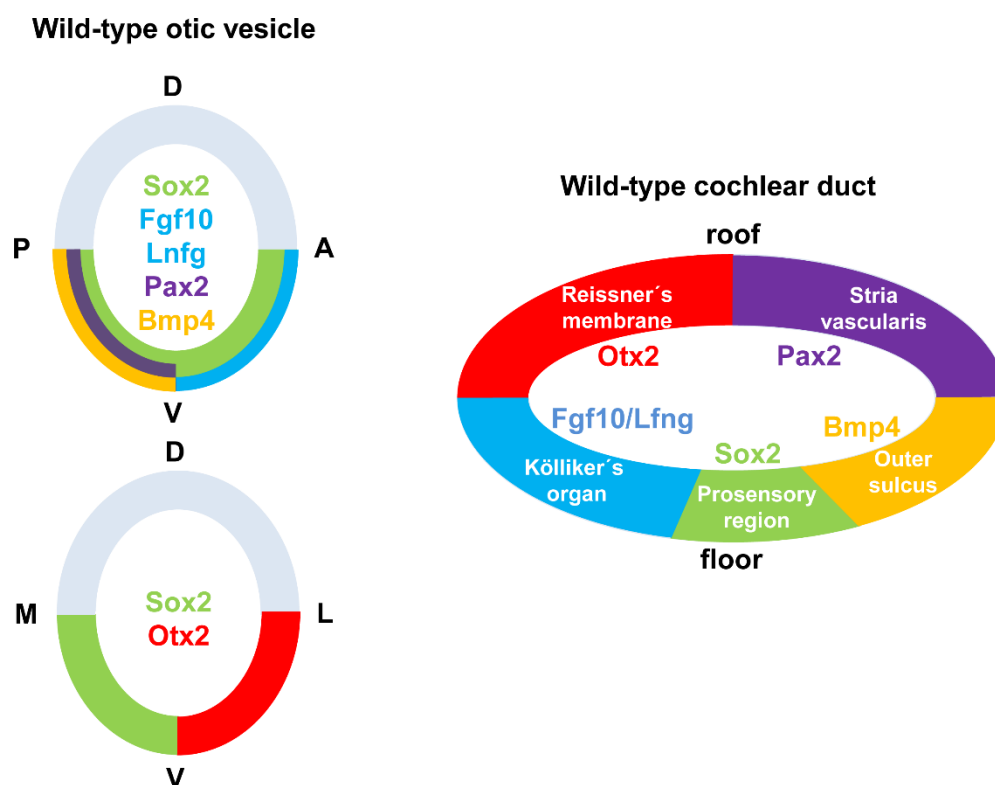


Supplementary Fig. 1. Misexpression of N-myc leads to ectopic Otx2 expression in the otic vesicle of chicken embryos.

Transversal section of a chicken embryo upon electroporation of the otic vesicle (ov) with vectors containing N-myc and GFP. Ectopic cOtx2 expression is detected in the dorsal portion of the electroporated otic vesicle (right) after a brief exposure to the chromogenic substrate, indicating the presence of the digoxigenin-labelled RNA probe.



Supplementary Fig. 2. Expression domains of genes involved in otic patterning in the otic vesicle and the cochlear duct.

Sox2 is initially broadly expressed throughout the ventral portion of the otic vesicle (top, left) but is then downregulated in the ventro-lateral domain at the level where Otx2 expression is now found (bottom, left). Results from the present work and previous publications (Burton et al., 2004; Kiernan et al., 2005; Mak et al., 2009; Morsli et al., 1998; Morsli et al., 1999; Ohyama et al., 2012; Pauley et al., 2003) indicate that the future cochlear duct may be mapped onto the ventral portion of the otic vesicle. A molecular map of otic patterning genes in the cochlear duct is shown on the right. The expression of these patterning genes in the ventro-medial (Sox2) and ventro-lateral (Otx2) (bottom, left), and antero-ventral (Lfng, Fgf10) and postero-ventral domains (Pax2, Bmp4) (top, left) of the otic vesicle are indicated. Note that in the case of Pax2 and Bmp4 only the postero-ventral domains of expression which are likely to be relevant for the formation of the cochlear duct are shown. Abbreviations: a, anterior; d, dorsal; l, lateral; m, medial; p, posterior; v, ventral.

Table S1. Summary of genes downregulated in the cochlea of *N-myc* mutants

Gene (MGI reference)	Fold Downregulation	Expression Pattern
low density lipoprotein receptor-related protein 2 (95794)	6.8 x	roof of cochlear duct
endothelin converting enzyme-like 1 (1343461)	5.3 x	roof of cochlear duct
solute carrier family 6, member 15 (2143484)	4.7 x	cochlear ganglion
calbindin 1 (88248)	4.6 x	cochlear ganglion
orthodenticle homolog 2 (MGI:97451)	4.4 x	roof of cochlear duct
otoancorin (2149209)	3.2 x	roof of cochlear duct
protein kinase C, theta (97601)	3.0 x	cochlear duct
mucolipin 3 (1890500)	2.7 x	cochlear duct
solute carrier family 27, member 2 (1347099)	2.6 x	roof of cochlear duct
EF hand domain containing 1 (1921607)	2.6 x	neural portion of cochlear duct
family with sequence similarity 20, member A (2388266)	2,5 x	cochlea
hepatocyte growth factor (96079)	2.3 x	roof of cochlear duct
ectonucleoside triphosphate diphosphohydrolase 3 (1321386)	2.3 x	roof of cochlear duct, cochlear ganglion

arginase type II (1330806)	2.2 x	cochlear duct
Ca ²⁺ -dependent activator protein for secretion 2 (2443963)	2.2 x	roof of cochlear duct
tubulin, beta 4 (107848)	2.2 x	cochlear ganglion
TOX high mobility group box family member 3 (3039593)	2.1 x	cochlear duct
major facilitator superfamily domain containing 2A (1923824)	2.1 x	neural portion of cochlear duct
adaptor protein complex AP-1, mu 2 subunit (1336974)	2.1 x	cochlear duct
upstream transcription factor 1 (99542)	2.0 x	cochlear ganglion
family with sequence similarity 107, member A (3041256)	2.0 x	neural portion of cochlear duct
myosin VB (106598)	2.0 x	cochlear ganglion
chloride channel Ka (1329026)	2.0 x	roof of cochlear duct
claudin 9 (1913100)	2.0 x	cochlear duct
glutamyl aminopeptidase (106645)	2.0 x	cochlear duct
G protein-coupled receptor 56 (1340051)	2.0 x	cochlear ganglion
RIKEN cDNA 1190002H23 gene (1913464)	2.0 x	neural portion of cochlear duct
tumor necrosis factor receptor superfamily, member (1352474)	2.0 x	cochlear duct, surrounding mesenchyme
melanoregulin (2151839)	2.0 x	cochlear ganglion

The localization of the genes within the cochlea was predicted according to Diez-Roux et al. (2011) who show expression of the listed genes at E14.5 using RNA in situ hybridization. The table shows a list of genes which are expressed in the cochlea and downregulated by twofold or higher in *N-myc* mutant cochleas according to the results obtained by the microarrays.