

evidence of poorer outcomes or more infections<sup>6</sup>.

Attention should also focus on other strategies to reduce resistance. As McCormick *et al.* point out, the use of pneumococcal vaccines will reduce resistance to some extent because the vaccine serotype strains are among those with the highest proportion of resistance to both penicillin and macrolides. Influenza vaccination also reduces antibiotic use in healthy adults<sup>11</sup>. Finally, several recent studies have shown that improved hand hygiene in schools is associated with substantial reductions in rates of respiratory illness, the condition for which most antibiotics are prescribed<sup>12</sup>. Improved hand hygiene also reduces rates of methicillin-resistant *S. aureus* in hospitals<sup>13</sup>.

Knowing the speed with which resistance is appearing, and knowing that decreases in antibiotic resistance occur more slowly than increases, we may

not be able to “sponge away the writing on this stone” in the time allotted to us. It appears that McCormick *et al.* will have an opportunity to see whether or not their projections are indeed true.

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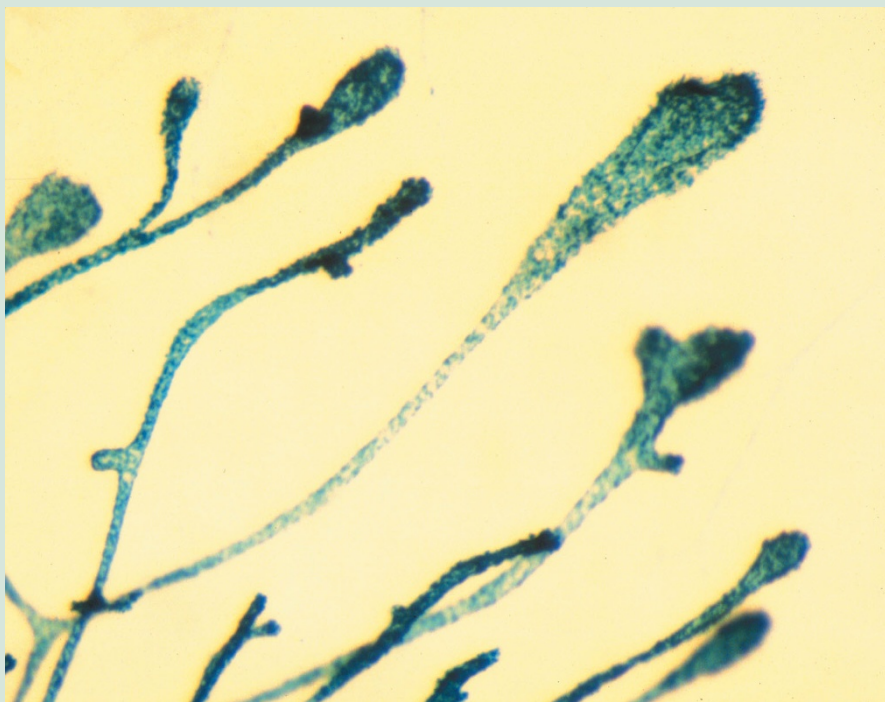
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## Breaking away from the breast

The secreted glycoprotein netrin-1 gained its fame as a neuronal guidance molecule. Now this molecule has moved on to the mammary gland. Srinivasan *et al.* report that netrin-1 acts as a sort of molecular glue for cells in buds at the growing tips of the gland (shown here as a whole mount stained with  $\beta$ -galactosidase, captured with light microscopy). These buds form during the equivalent of puberty in the mouse, growing as fast as 0.5 mm per day from the nipple down into a fat pad. A group of multipotent cells that strain forward at the tip of the bud express a netrin receptor, neogenin, report the investigators in the March issue of *Developmental Cell*. Nestled behind these cells at the tip is a separate layer of cells, which, the authors found, express netrin-1. Netrin-1–neogenin interactions seem to keep the two cell layers next to each other—and prevent the multipotent cells at the tip from wandering away. Such wandering occurs in glands lacking either netrin or neogenin, leading to cell death for some of the wayward cells. Developmental processes during adulthood may also involve netrin and neogenin, speculate the investigators, who found neogenin and netrin expressed during pregnancy and lactation. They are now taking a close look at whether loss of these genes leads to cancer susceptibility. Neogenin already has a well-known but inscrutable relative with cancer connections, DCC (deleted in colorectal carcinoma).



Courtesy of L. Hincik, K. Srinivasan, P. Strickland

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