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Cover photograph (Copyright © 2008, American Society for Microbiology. All Rights Reserved.): Metabolic map of *Escherichia coli* intermediary metabolism. A minimal *E. coli* strain is obtained when the crossed reactions are eliminated from the metabolic network. The resulting strain, TCS083, can simultaneously convert hexoses and pentoses into ethanol at high yield and productivity. Deleted reactions in the TCS083 strains are shown next to the symbol X. Reactions include PPP1 (glucose-6-phosphate-1-dehydrogenase, *zwf*), OPM4r (NADH dehydrogenase II, *ndh*), ANA2 (NAD/NADP-dependent malate enzyme, *sfcA/maeB*), FEM3 (D-lactate dehydrogenase, *ldhA*), TCA10 (fumarate reductase, *frdA*), FEM2 (pyruvate oxidase, *poxB*), and FEM7 (phosphate acetyltransferase, *pta*). (See related article on page 3634.)