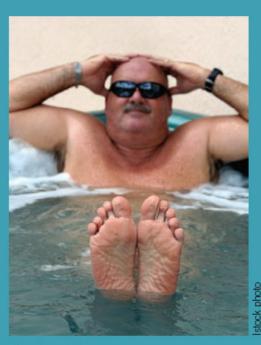


## **Melting away**

A dip in the hot tub—"heat therapy"—can improve insulin sensitivity in individuals with diabetes. Jason Chung *et al.* examine the mechanistic basis for this effect and home in on a new drug target (*Proc. Natl. Acad. Sci.*, doi:10.1073/pnas.0705799105).

The researchers found that obese, insulinresistant humans have low levels of heat-shock protein 72 (HSP72) in skeletal muscle, and that, in mice, heat therapy can induce HSP72. When HSP72 was genetically overexpressed, mice were protected from insulin resistance after consuming a high fat diet.

The researchers next found that HSP72 affected the activation of the serine-threonine kinase c-Jun amino terminal kinase (JNK), which can impair insulin signaling. Mice expressing high levels of HSP72 had reduced JNK activation, which allowed the insulin pathway to continue signaling despite



Fighting diabetes.

a high-fat diet. The HSP72-overexpressing mice also had increased energy expenditure and reduced fat stores compared to wild-type mice fed a high-fat diet.

Inducing HSP72 expression in obese mice with a small molecule resulted in improved insulin sensitivity throughout the body. The drug is now in clinical trials.—KS