Corks, exotic 4-manifolds and knot concordance

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We give a method for producing framed knots which represent exotic (Stein) 4-manifolds. To obtain the method, we introduce a new description of cork twists. As a corollary, we obtain non-concordant knots with the same 0-surgery, disproving the Akbulut-Kirby conjecture given in 1978.