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Reversible ON- and OFF-switch chimeric antigen receptors controlled by lenalidomide

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Flipping the switch on T cells

Cell-based treatments such as chimeric antigen receptor (CAR) T cells have been finding increasing applications against cancer and other disorders. However, these treatments can have side effects, and it is difficult to stop the activity of an overactive cell-based therapy once it is inside a patient. To improve regulation of CAR T cell treatment, Jan *et al*. developed a switch-based system for activating and inactivating these cells. T cells with an OFF switch were deactivated using the drug lenalidomide, whereas those with an ON switch required both lenalidomide and a target antigen for activation, allowing control over the timing of T cell activation.