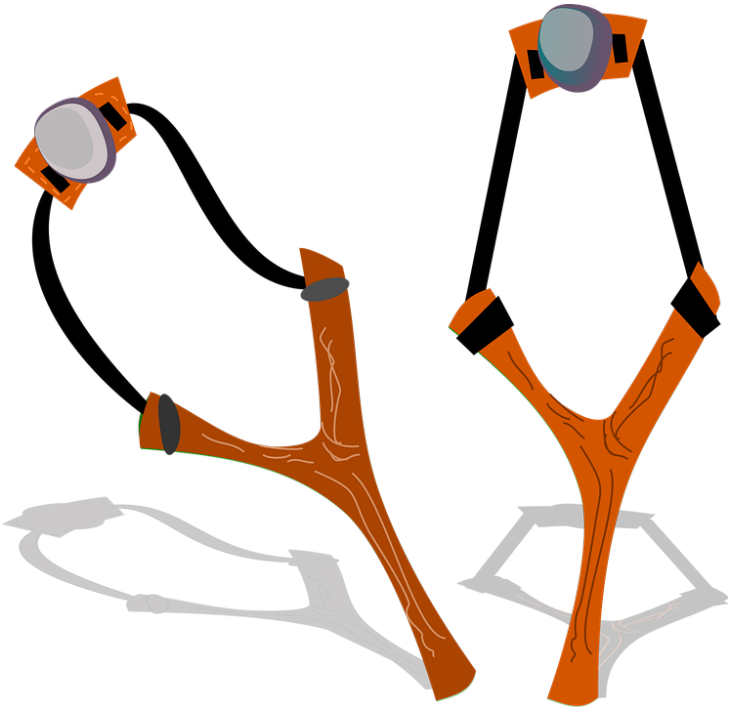
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A molecular slingshot created for shooting drugs

09 May 2017 | News

This molecular slingshot could shoot and deliver drugs at precise locations in the human body once triggered by specific disease markers.



An international team of researchers from the University of Rome Tor Vergata and the University of Montreal has reported the design and synthesis of a nanoscale molecular slingshot made of DNA that is 20,000 times smaller than a human hair. This molecular slingshot could shoot and deliver drugs at precise locations in the human body once triggered by specific disease markers.

The molecular slingshot is only a few nanometres long and is composed of a synthetic DNA strand that can load a drug and then effectively act as the rubber band of the slingshot. The two ends of this DNA "rubber band" contain two anchoring moieties that can specifically stick to a target antibody, a Y-shaped protein expressed by the body in response to different pathogens such as bacteria and viruses. When the anchoring moieties of the slingshot recognize and bind to the arms of the target antibody the DNA "rubber band" is stretched and the loaded drug is released.

The group of researchers is now eager to adapt the slingshot for the delivery of clinically relevant drugs, and to demonstrate its clinical efficiency.

The next step in the project is to target a specific disease and drug for which the therapeutic slingshot can be adapted for testing on cells in vitro, prior to testing in mice.