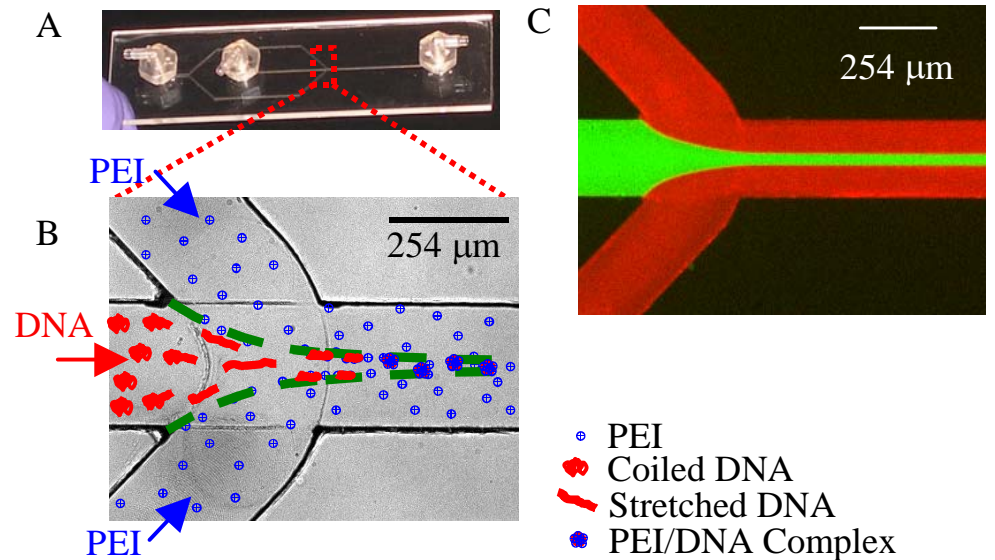


Microfluidic device used to create DNA complex

C.G. Koh, Z. Fei, S. Wang and L.J. Lee

The Ohio State University

Scientists are trying to uncover a method that will allow DNA to be implanted into cells, which could someday be used to treat many genetic disorders. One of the biggest obstacles is making the DNA strands small enough to get through a cell's outer membrane. OSU researchers have created a microfluidic device (Figure A) that forces small amounts of negatively charged DNA solution and positively charged polyethylenimine (or PEI) to mix together (Figure B). Because of their opposing electric charges and the focused way they are mixed in the device, the PEI/DNA complex squeezes down to about 80 nanometers, or about the size a flu virus. Figure C illustrates the hydrodynamic flow within the device.



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