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Scientists create handheld CRISPR device

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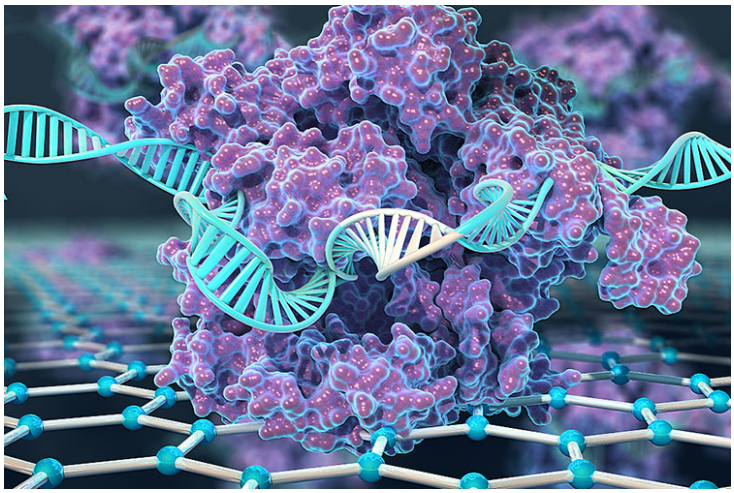

A team of engineers at the UC Berkeley and the Keck Graduate Institute (KGI) of The Claremont Colleges combined CRISPR with electronic transistors made from graphene to create a new hand-held device that can detect specific genetic mutations in a matter of minutes.

The device, dubbed CRISPR-Chip, could be used to rapidly diagnose genetic diseases or to evaluate the accuracy of gene-editing techniques. The team used the device to identify genetic mutations in DNA samples from Duchenne muscular dystrophy patients.

But unlike most forms of genetic testing, including recently developed CRISPR-based diagnostic techniques, CRISPR-Chip uses nanoelectronics to detect genetic mutations in DNA samples without first “amplifying” or replicating the DNA segment of interest millions of times over through a time- and equipment-intensive process called polymerase chain reaction, or PCR. This means it could be used to perform genetic testing in a doctor’s office or field work setting without having to send a sample off to a lab.