

DROPLET DIGITAL™ PCR (DDPCR™)

BIO-RAD

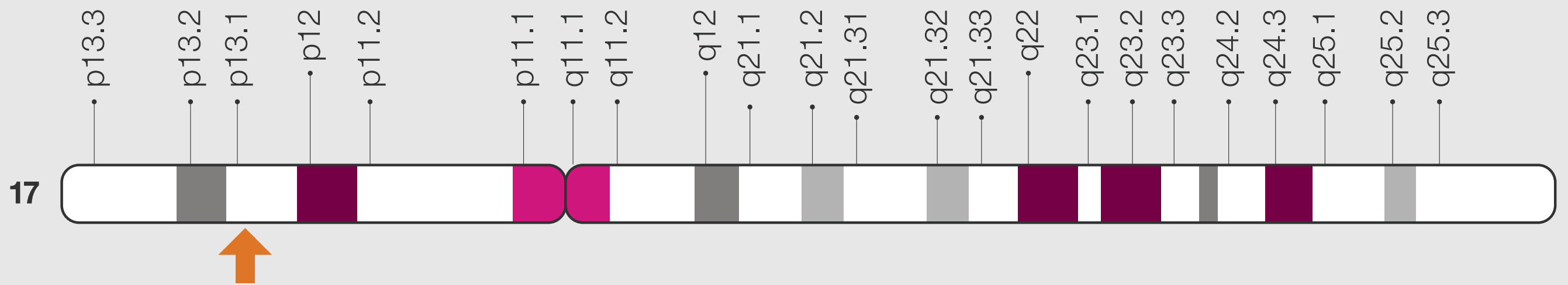


What do you **Gene**?

TP53

Guardian of the Genome

WHAT IS IT?



A **tumor suppressor** gene found on chromosome 17



TP53 contains instructions for making the **p53 protein**, which regulates cell division by keeping cells from proliferating too fast or in an uncontrolled way.

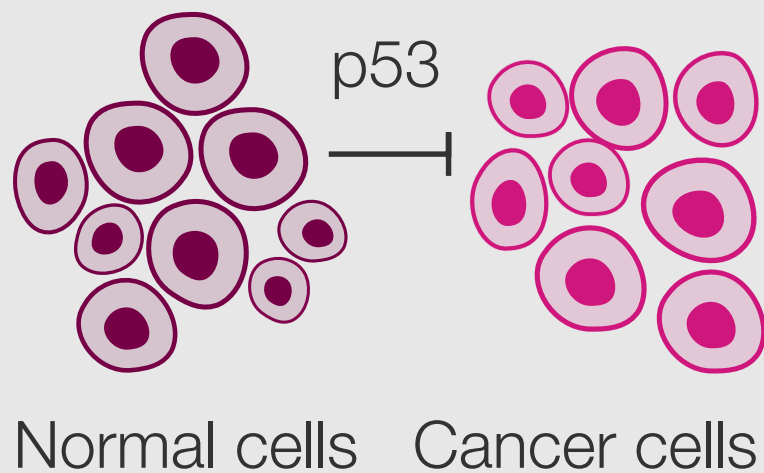


Located in the nucleus, p53 binds to DNA and **helps determine if the cell will undergo apoptosis** or be repaired due to DNA damage.

TP53 AND CANCER



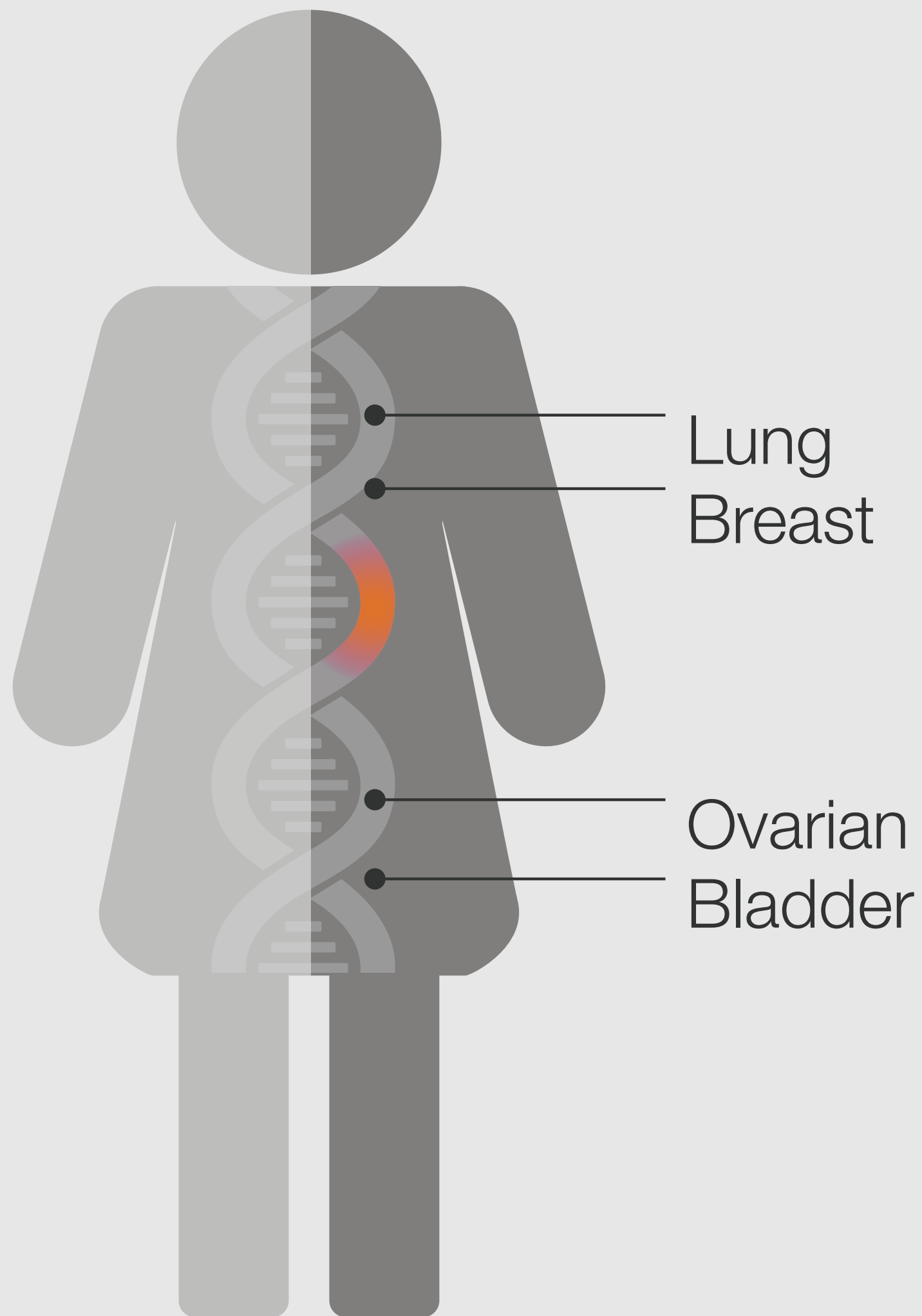
In 1984, Wolf et al. found that ***TP53*** was inactivated by retroviral insertion in a leukemia-transformed mouse cell line.



The study led to the theory that ***TP53*** is a tumor suppressor, with subsequent studies confirming this hypothesis.

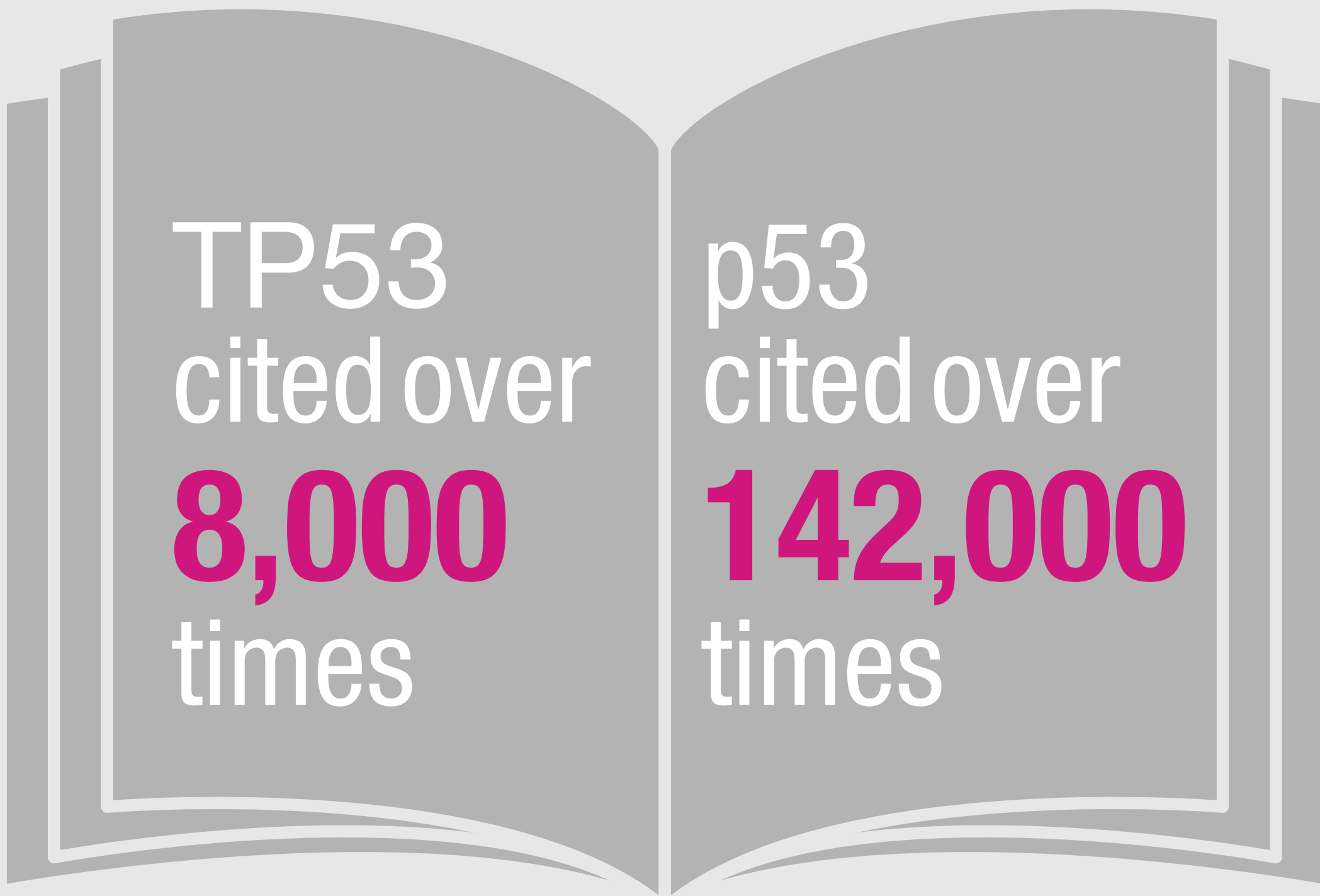


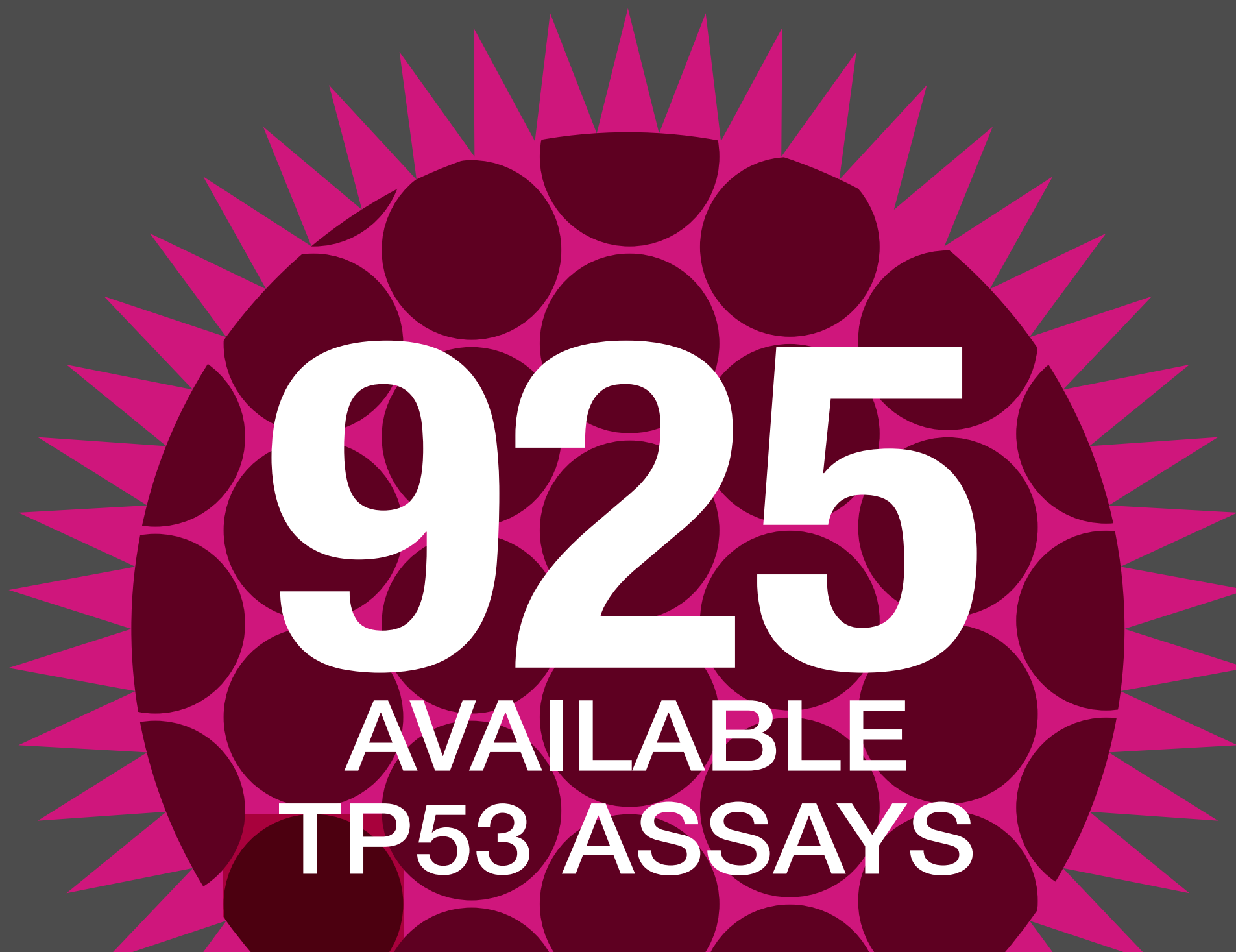
Somatic or Mendelian mutations in ***TP53*** greatly increase the risk of cancers by rendering p53 ineffective.



***TP53* is mutated in half of all types of cancer** including breast, bladder, lung, and ovarian.

TP53 IN LITERATURE





DROPLET DIGITAL PCR (ddPCR) PRODUCTS FROM BIO-RAD

- Bio-Rad offers 925 different *TP53* assays in the ddPCR catalog, with options for custom design.

Visit [bio-rad.com/digital-assays](https://www.bio-rad.com/digital-assays) for more information. For research use only.

References:

Rivlin N et al. (2011). Mutations in the p53 tumor suppressor gene. *Genes Cancer* 2, 466–474.

Wolf D and Rotter V (1984). Inactivation of p53 gene expression by an insertion of Maloney murine leukemia virus-like DNA sequences. *Mol Cell Biol* 4, 1402-1410.

Levine A (2021). Spontaneous and inherited TP53 genetic alterations. *Oncogene* 40, 5975-5983.

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