

Ranitidine Investigation Summary

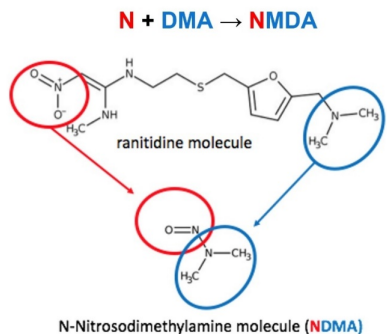
PILL → **BODY** → **WASTE** = **CANCER**

Ranitidine is unstable and can form millions of ng of NDMA*

1980s – Ranitidine suspected of reacting with nitrite in the stomach to form NDMA.

2000s – Studies show instability of ranitidine and its DMA group is linked to forming NDMA in oxidative conditions.

2019 – Valisure shows ranitidine forms millions of ng of NDMA and can react with itself. Both DMA and nitrite (N) are present in ranitidine.

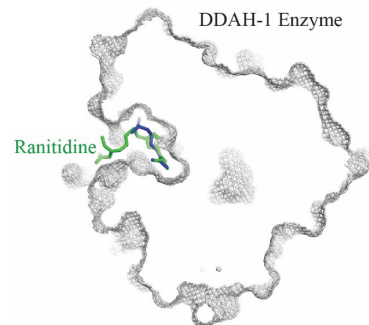


Ranitidine likely generates millions of ng of NDMA in humans

1980s – Ranitidine shown to form thousands of ng of NDMA in conditions of the human stomach.

2016 – Stanford study suspects millions of ng of NDMA formed by ranitidine separately from the stomach, but mechanism unknown.

2019 – Valisure identifies and models DDAH-1 enzyme revealing potential mechanism for generating millions of ng of NDMA in body.



>40,000 ng of NDMA found in urine after taking ranitidine pills

2000s – Urination of ranitidine into wastewater suspected as source of NDMA in municipal drinking water.

2016 – Stanford University conducts clinical study with 10 healthy volunteers taking 150mg of ranitidine once per day. >40,000 ng of NDMA detected in urine. Suspected link to bladder cancer.



Evidence in NCI study linking ranitidine to cancer

2004 – National Cancer Institute study links antacids, ranitidine and cimetidine, to bladder cancer.

2019 – Valisure working with Memorial Sloan Kettering Cancer Center on epidemiological studies specific to ranitidine.

*The FDA maximum permissible daily exposure of the probable human carcinogen, NDMA, in pharmaceuticals is 96 ng

