

# Three Ways to Measure DNA Damage

## Analytical Chemistry Services

Affordable, accurate quantitation of 8-OH-dG via LC-MS/MS

## ELISA Kits

Sensitive determination of 8-OH-dG

## Bioanalysis Services

You provide the samples; Cayman provides the results

## Analytical Chemistry Services

The most vulnerable site for oxidative damage on DNA is at C-8 on guanosine, resulting in the formation of 8-hydroxy-2'-deoxyguanosine (8-OH-dG) (**Figure 1**). 8-OH-dG is considered a stable biomarker of oxidative genome damage. Detection in urine offers a non-invasive approach to assess systemic DNA oxidative damage.

8-OH-dG levels in urine are typically below the levels of quantification (LOQ) of published LC-MS/MS methods. Cayman has developed methodology to measure endogenous 8-OH-dG in urine by LC-MS/MS with an LOQ of 100 pg/ml. This level of sensitivity can be achieved by analyzing only 10  $\mu$ l of urine and makes studies in mouse and rat realistic.

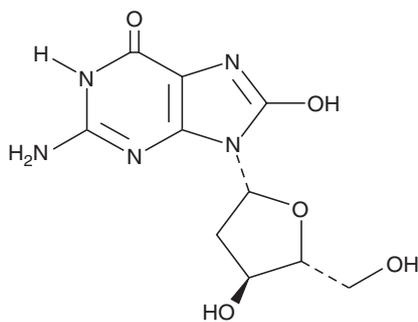


Figure 1. 8-OH-dG

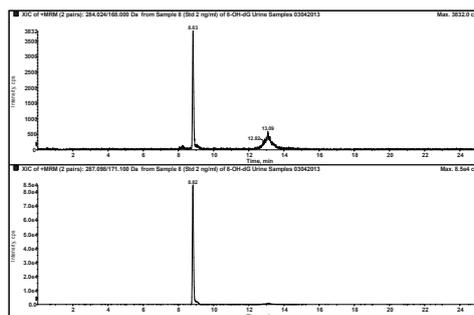


Figure 3. Calibration Standard

Standard Recovery	100%
Precision (1 ng/ml in urine)	3.74% RSD (n=6)
LOQ	100 pg/ml
LOD	30 pg/ml

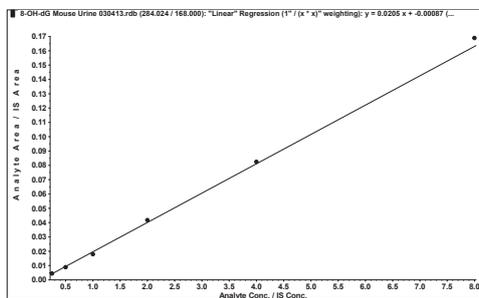


Figure 2. 8-OH-dG Calibration Curve (100-8,000 pg/ml)

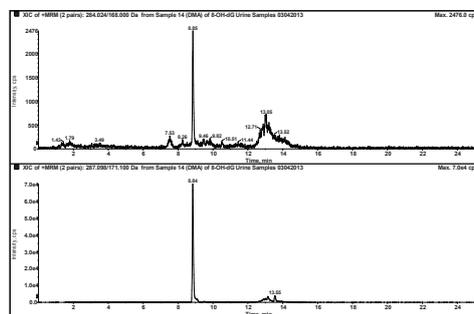


Figure 4. Endogenous Sample

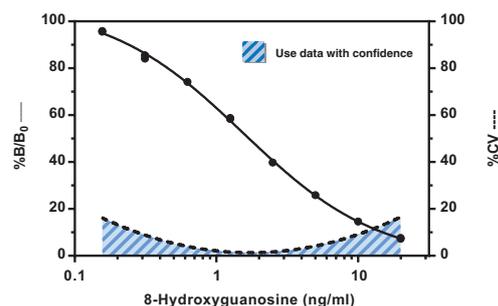
# Featured ELISA Kits

During the repair processes initiated to correct damage to DNA or RNA, several oxidized guanine species are released into the urine. Cayman offers two different ELISA kits that measure these damage markers:

## DNA/RNA Oxidative Damage (Clone 7E6.9) ELISA Kit

Item No. 501130

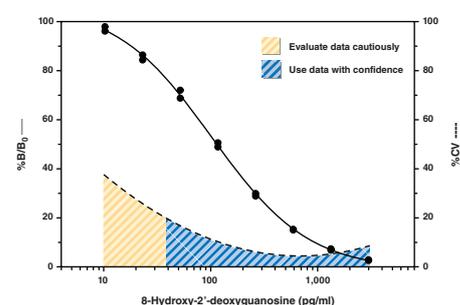
- Measure DNA oxidative damage marker 8-hydroxy-2'-deoxyguanosine and RNA damage marker 8-hydroxyguanosine with equal selectivity and sensitivity
- Cross reactivity of clone 7E6.9 validated by mass spectrometry
- Measure 8-hydroxyguanosine levels down to 0.45 ng/ml
- **Incubation:** 18 hours | **Development:** 90-120 minutes  
**Read:** Colorimetric at 405-420 nm



## DNA/RNA Oxidative Damage ELISA Kit

Item No. 589320

- Measure major oxidative damage markers 8-hydroxy-2'-deoxyguanosine, 8-hydroxyguanosine, and 8-hydroxyguanine in urine, cell culture medium, cell lysates, tissue samples, saliva, and plasma/serum samples
- Assay Range: 10.3-3,000 pg/ml
- **Incubation:** 18 hours | **Development:** 90-120 minutes  
**Read:** Colorimetric at 405-420 nm



## Related Assays

Item No.	Product Name
709001	Antioxidant Assay Kit
707002	Catalase Assay Kit
703002	Glutathione Assay Kit
516351	8-Isoprostane ELISA Kit

Item No.	Product Name
705002	Lipid Hydroperoxide (LPO) Assay Kit
10005020	Protein Carbonyl Colorimetric Assay Kit
706002	Superoxide Dismutase Assay Kit
700870	TBARS (TCA Method) Assay Kit

## Bioanalysis & Assay Development Services

Let Cayman run your samples for you using any of the well-characterized kits from our own catalog, including the DNA/RNA Oxidative Damage ELISA Kits featured above. Our scientists are experts in sample preparation, analysis, and assay development and deliver high-quality data affordably and efficiently. Custom assay development is also available if you are looking for an assay designed for the specific needs of your project.

Learn more about our products and services to measure oxidative damage markers at [www.caymanchem.com](http://www.caymanchem.com)