

# Cyclic Dinucleotide ELISA Kits



Cyclic dinucleotides (CDNs) are ubiquitous cellular messengers that serve important signaling functions in all domains of life. To better understand CDN signaling systems in both eukaryotes and prokaryotes, Cayman, in conjunction with the expert nucleotide scientists at Biolog Life Science Institute, has developed competitive immunoassays for the specific detection of 3'3'-cGAMP, 2'3'-cGAMP, cyclic di-GMP, and cyclic di-AMP. These assay kits enable sensitive, accurate, reliable quantification of CDN levels in mammalian and bacterial samples.

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- Assay Features:**
- Highly sensitive detection in the low pM or pg/ml range
  - 96-Well microtiter plate format
  - Assay 24 samples in triplicate or 36 samples in duplicate
  - Colorimetric readout (Abs. = 450 nm)

## NEW 3'3'-cGAMP ELISA Kit

Item No. 502130

- Measure 3'3'-cGAMP in bacterial and mammalian cell lysates and cell supernatants

**Assay Range:** 78-10,000 pM (52.6-6,744 pg/ml)

**Mid-point (50% B/B<sub>0</sub>):** 818 pM (552 pg/ml)

**Sensitivity (80% B/B<sub>0</sub>):** 210 pM (142 pg/ml)

**LLOD:** 26 pM (17.5 pg/ml)

- Uses a highly specific monoclonal antibody
- Rapid assay; get results in under 3 hours

## 2'3'-cGAMP ELISA Kit

Item No. 501700

- Measure 2'3'-cGAMP in mammalian cell lysates, plasma, serum, and tissue samples

**Assay Range:** 9 pM-148.3 nM (6.1 pg/ml-100 ng/ml)

**Mid-point (50% B/B<sub>0</sub>):** 1,346 pM (907.7 pg/ml)

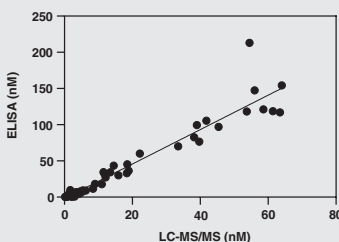
**Sensitivity (80% B/B<sub>0</sub>):** 126.5 pM (85.3 pg/ml)

**LLOD:** 14.2 pM (9.6 pg/ml)

- Run overnight or incubate for just 2 hours without compromising sensitivity
- Validated in THP-1 cell lysates

## Independently Validated by LC-MS/MS

Values obtained by Cayman's 3'3'-cGAMP ELISA Kit exhibit excellent correlation with values independently obtained by LC-MS/MS.



LC-MS/MS Correlation of 34 independent transformed *E. coli* samples

### Reference:

- Wilburn, K.M., Blaylock, J., Metcalfe, K., *et al.* Development of 3'3'-cyclic GMP-AMP enzyme linked immunoassay reveals phage infection reduced DncV activity. *Isr. J. Chem.* (2022).

## Cited in more than 55 peer-reviewed articles

### Selected product citations:

- Tan, H.Y., Yong, Y.K., Xue, Y.C., *et al.* cGAS and DDX41-STING mediated intrinsic immunity spreads intercellularly to promote neuroinflammation in SOD1 ALS model. *iScience* **25(6)**, 104404 (2022).
- Zhou, Z., Zhang, X., Lei, X., *et al.* Sensing of cytoplasmic chromatin by cGAS activates innate immune response in SARS-CoV-2 infection. *Signal Transduct. Target. Ther.* **6(1)**, 382 (2021).

View the scientific poster Development and Validation of a 2'3'-cGAMP ELISA at [www.caymanchem.com/cGAMP](http://www.caymanchem.com/cGAMP)

## Cyclic di-GMP ELISA Kit Item No. 501780

- Measure cyclic di-GMP in bacterial cell lysates
  - Assay Range:** 6.7-14,480 pM (4.6-10,000 pg/ml)
  - Mid-point (50% B/B<sub>0</sub>):** 357.1 pM (246.6 pg/ml)
  - Sensitivity (80% B/B<sub>0</sub>):** 55.5 pM (38.3 pg/ml)
  - LLOD:** 7.7 pM (5.3 pg/ml)
- Uses a high-affinity polyclonal antiserum
- Rapid assay; get results in under 4 hours
- Validated in *E. coli* cell lysates

### Selected product citations:

- Wen, Y., Wang, Y., Chen, S., *et al.* Dysregulation of cytosolic c-di-GMP in *Edwardsiella piscicida* promotes cellular non-canonical ferroptosis. *Front. Cell. Infect. Microbiol.* **12**, 825824 (2022).
- Sen, T. and Verma, N.K. YfiB: An outer membrane protein involved in the virulence of *Shigella flexneri*. *Microorganisms* **10(3)**, 653 (2022).

## Cyclic di-AMP ELISA Kit Item No. 501960

- Measure cyclic di-AMP in bacterial cell lysates
  - Assay Range:** 23.7-3,038 pM (15.6-2,000 pg/ml)
  - Mid-point (50% B/B<sub>0</sub>):** 273.7 pM (180.2 pg/ml)
  - Sensitivity (80% B/B<sub>0</sub>):** 99.5 pM (65.5 pg/ml)
  - LLOD:** 31.4 pM (20.7 pg/ml)
- Uses a highly specific monoclonal antibody
- Rapid assay; get results in under 4 hours
- Validated in *E. coli* cell lysates

### Selected product citations:

- Oberkampff, M., Hamiot, A., Altamirano-Silva, A. *et al.* c-di-AMP signaling is required for bile salt resistance, osmotolerance, and long-term host colonization by *Clostridioides difficile*. *Sci. Signal.* **15(750)**, eabn8171 (2022).
- Moradali, M.F., Ghods, S., Bähre, H., *et al.* Atypical cyclic di-AMP signaling is essential for *Porphyromonas gingivalis* growth and regulation of cell envelope homeostasis and virulence. *NPJ Biofilms Microbiomes* **8(1)**, 53 (2022).

Explore these kits on Cayman's website for additional data, including:



- Complete data on kit performance:
  - Spike and recovery data
  - Linearity data
  - Cross reactivity tables
- Detailed assay kit protocols
- List of supplied reagents and materials

## Is there a particular CDN you'd like to see an immunoassay developed for?

Cayman has the knowledge and experience that comes from decades of assay development, validation, and performance. We continue to collaborate with the nucleotide experts at Biolog Life Science Institute to develop more novel assays for key CDNs and other cyclic oligonucleotides, delivering the sensitivity and specificity needed to detect biologically significant analyte levels.

Email us at [sales@caymanchem.com](mailto:sales@caymanchem.com) to tell us about your research needs