

Protein G Biosensors

For quantitation of antibody concentration

Key features

- Direct detection of human, mouse and rat IgGs
- Regenerable and cost-effective format
- Obtain ELISA data in minutes

Dip and Read™ Protein G (ProG) biosensors provide a rapid and direct method for quantifying mammalian IgGs from buffer, media or other complex matrices. Protein G is pre-immobilized onto the biosensors, and binds to rodent and many other mammalian IgGs with higher affinity than Protein A (Table 1, Figure 1), but does not bind to IgM, IgD or IgA. In combination with the Octet® system, Protein G biosensors can streamline bioprocessing applications by providing precise results with minimal sample handling and turnaround times as fast as two minutes. The biosensors can be regenerated multiple times, providing a cost-effective and time-saving assay format.

Quick facts

- Dynamic Range: 0.05– 2000 µg/mL for most proteins (Octet RED/RED384 system)
- Throughput: 16 samples in as little as 2 minutes
384 samples in as little as 60 minutes
- Precision/Accuracy: <10% CVs

Bioprocessing applications

- Hybridoma screening
- Clone selection
- Antibody titer
- Media development
- Bioreactor growth optimization
- Chromatography mass balance

Principle of antibody quantitation

The Octet system measures the rate of antibody binding to the surface of biosensors. Greater antibody concentrations result in faster binding rates. The Octet system software calculates a concentration from each rate based on the values of a standard curve.

| Antibody | Protein L | Protein A | Protein G |
|----------------|-----------|-----------|-----------|
| Rat Total IgG | s | w | m |
| Rat IgG1 | s | w | m |
| Rat IgG2a | s | nb | s |
| Rat IgG2b | s | nb | w |
| Rat IgG2c | s | s | s |
| Rabbit IgG | w | s | s |
| Mouse IgG1 | s | w | m |
| Mouse IgG2a | s | s | s |
| Mouse IgG2b | s | s | s |
| Mouse IgG3 | s | s | s |
| Goat IgG | nb | w | s |
| Sheep IgG | nb | w | s |
| Bovine IgG | nb | w | s |
| Guinea pig IgG | w | s | w |
| Hamster IgG | s | m | m |
| Pig IgG | s | s | w |
| Horse IgG | – | w | s |
| Donkey IgG | – | m | s |
| Dog IgG | – | s | w |
| Cat IgG | – | s | w |
| Human IgG1 | s | s | s |
| Human IgG2 | s | s | s |
| Human IgG3 | s | w | s |
| Human IgG4 | s | s | s |

s=strong m=medium w=weak nb=no binding

Table 1: Proteins A, G and L possess unique affinity profiles toward antibodies from different species and isotypes. Protein G binds with high affinity to several more species and isotypes than Protein A.



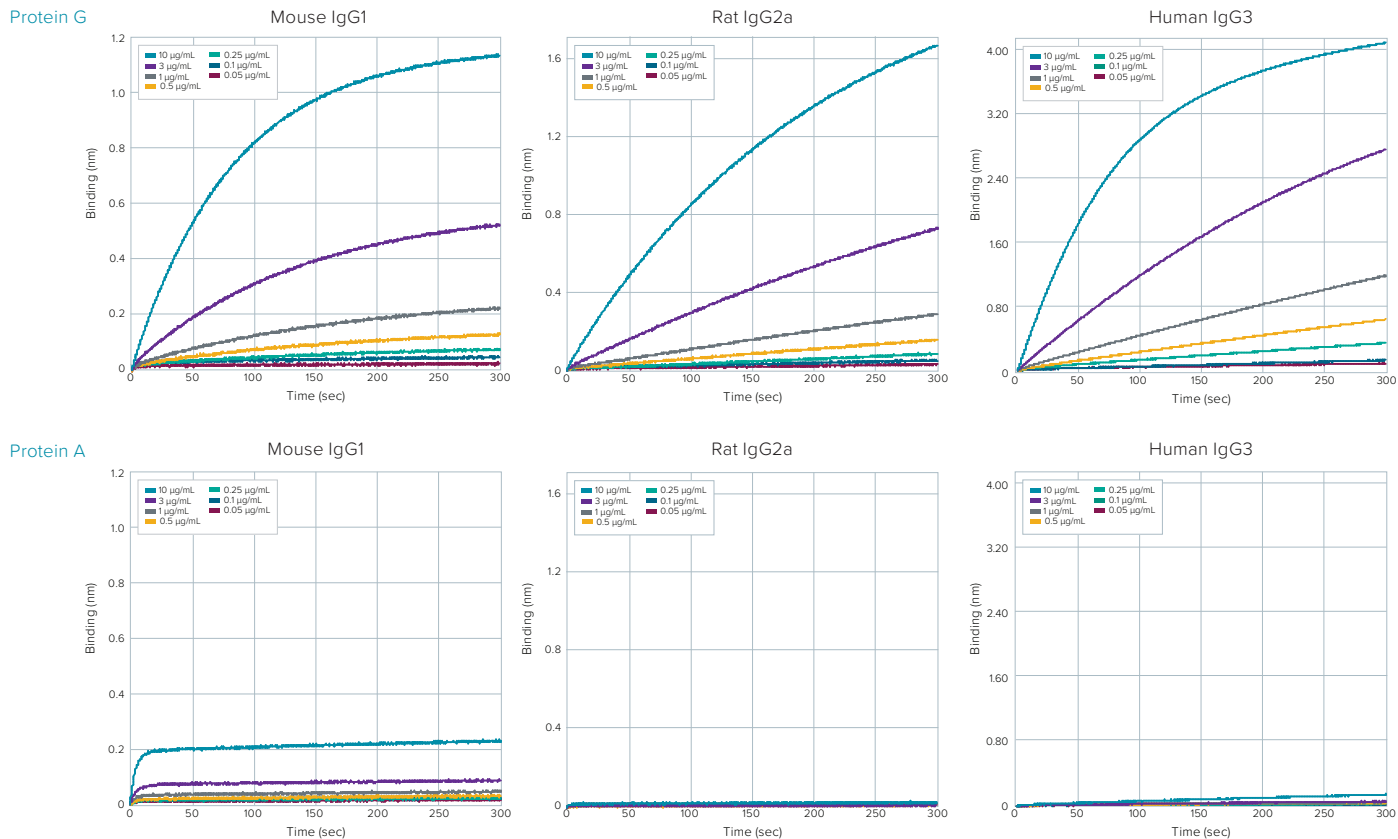


Figure 1: Differential binding of mouse, rat and human antibodies to Protein G and Protein A biosensors. At 10 $\mu\text{g/mL}$ with a Protein A biosensor, mouse IgG1, rat IgG2A and human IgG3 produce weak signals of approximately 0.2, 0.05 and 0.1 nm, respectively. In contrast, use of the Protein G biosensor to detect mouse IgG1, rat IgG2A and human IgG3 at 10 $\mu\text{g/mL}$ produced intense signals of 1.1, 1.6 and 4.0 nm, respectively. These increases of 5–20 fold demonstrate the expanded set of antibodies detectable in an “out of the box” format using the Protein G biosensors and the Octet platform.

Platform capabilities

The Octet platform offers a powerfully versatile approach to measuring and characterizing molecular interactions. The Octet QK, QK^e and RED instruments operate in a convenient 96-well microplate with sample volumes as low as 200 μL . With 8 detection channels, Octet QK, QK^e and RED instruments can obtain 8 measurements in as little as two minutes and 96 measurements in less than 30 minutes. The Octet QK384 and RED384 instruments decrease sample volumes even further to 80 μL , and their 16 detection channels enable 16 measurements in as little as two minutes and 384 measurements in under an hour. The Octet platform includes IQOQ tools and FDA 21 CFR Part 11 compliant software tools to meet GLP requirements.

Ordering information

| Part no. | UOM | Description |
|----------|------|---|
| 18-5082 | Tray | 96 biosensors coated with Protein G (includes 1 bottle of sample diluent) |
| 18-5083 | Pack | Five trays of 96 biosensors coated with Protein G (includes 5 bottles of sample diluent) |
| 18-5084 | Case | Twenty trays of 96 biosensors coated with Protein G (includes 20 bottles of sample diluent) |

Note: A purified standard that is identical to the experimental samples is required.

Protein A biosensors are also available:

Tray (96 biosensors, 18-5010)

Pack (5 trays, 18-5012)

Case (20 trays, 18-5013)



FortéBio
47661 Fremont Boulevard
Fremont, CA 94538
888.OCTET-75 or 650.322.1360
fortebio.info@moldev.com

FortéBio Analytics (Shanghai) Co., Ltd.
No. 88 Shang Ke Road
Zhangjiang Hi-tech Park
Shanghai, China 201210
salesops.china@moldev.com

Molecular Devices (UK) Ltd.
660-665 Eskdale
Winnesh Triangle
Wokingham, Berkshire
RG41 5TS, United Kingdom
+44 118 944 8000
uk@moldev.com

Molecular Devices (Germany) GmbH
Bismarckring 39
88400 Biberach an der Riss
Germany
+00800 665 32860