

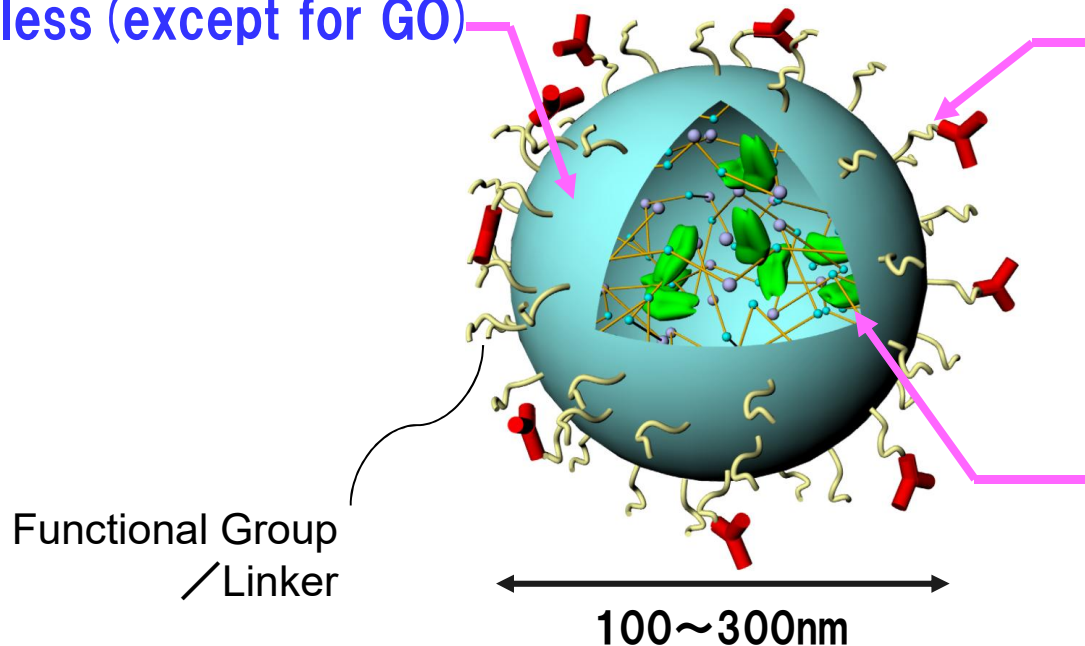
-Superb Features-

1) Nano-sized Silica

=> Hydrophilic,
Harmless (except for GO)

2) Binding Antibody to Surface/ Orientation Control => High Reactivity

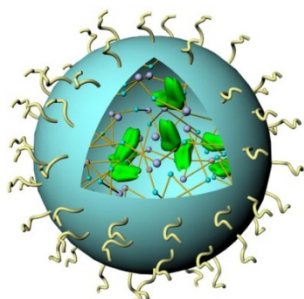
3) Bonded Fluorescent-dye => Higher Luminance /Brightness



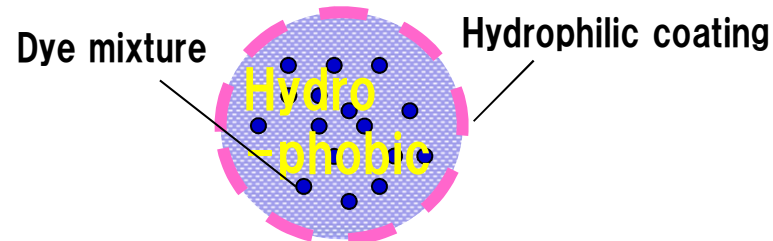
Suitable for high sensitive biomolecule detecting

=> **External diagnostic use** e.g. immunochromatograph

-QuartzDot Benefits for selecting-



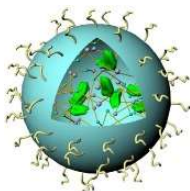
Example of other particles (latex)



Item	Characteristics	Benefits
Material	Silica base	Mechanically/chemically stable material
Surface	Hydrophilic	Excellent dispersion, no need for hydrophilic coating
Function	-SH + -OH	Easy to replace -SH to -NH ₂ or -COOH (p.3)
Dispersant	Surfactant-free	Less damage to the function from additives
Ultrasonic	Possible	Easy to re-disperse, durable & stable structure
Centrifugation	Good, Fast	Faster isolation, suppression of side reactions (p.4)
Dye stability	Covalent bonded dye to structure	Non-leaking dye, strong heat resistance, good stability over time

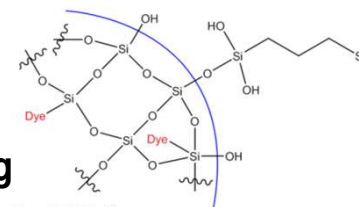
Easy to use, Stable characteristics

-Antibody sensitized protocol sample-

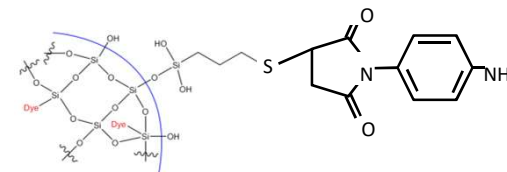


Non modified QuartzDot

Functional transformation by using
Maleimide compound (30min reaction in DMF)



Centrifugation (8000G×5min),
remove supernate

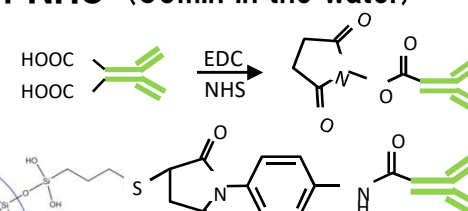


Cleaning by H₂O

Centrifugation (8000G×5min), remove supernate

Binding antibody to the surface with NHS (60min in the water)

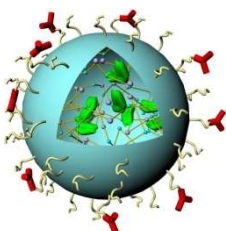
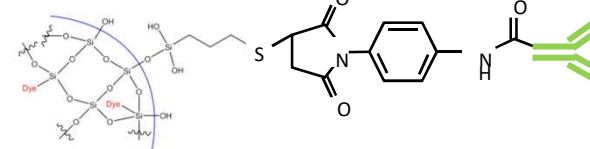
Centrifugation (8000G×5min),
remove supernate



Cleaning by buffer solution

Centrifugation (8000G×5min), remove supernate

Dispersion in buffer solution

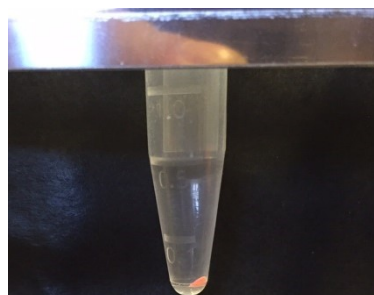
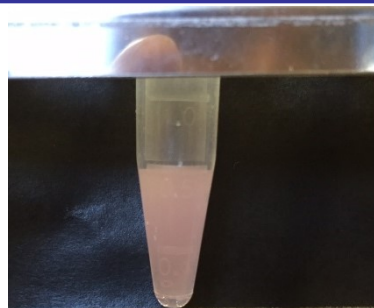


Antibody modified QuartzDot

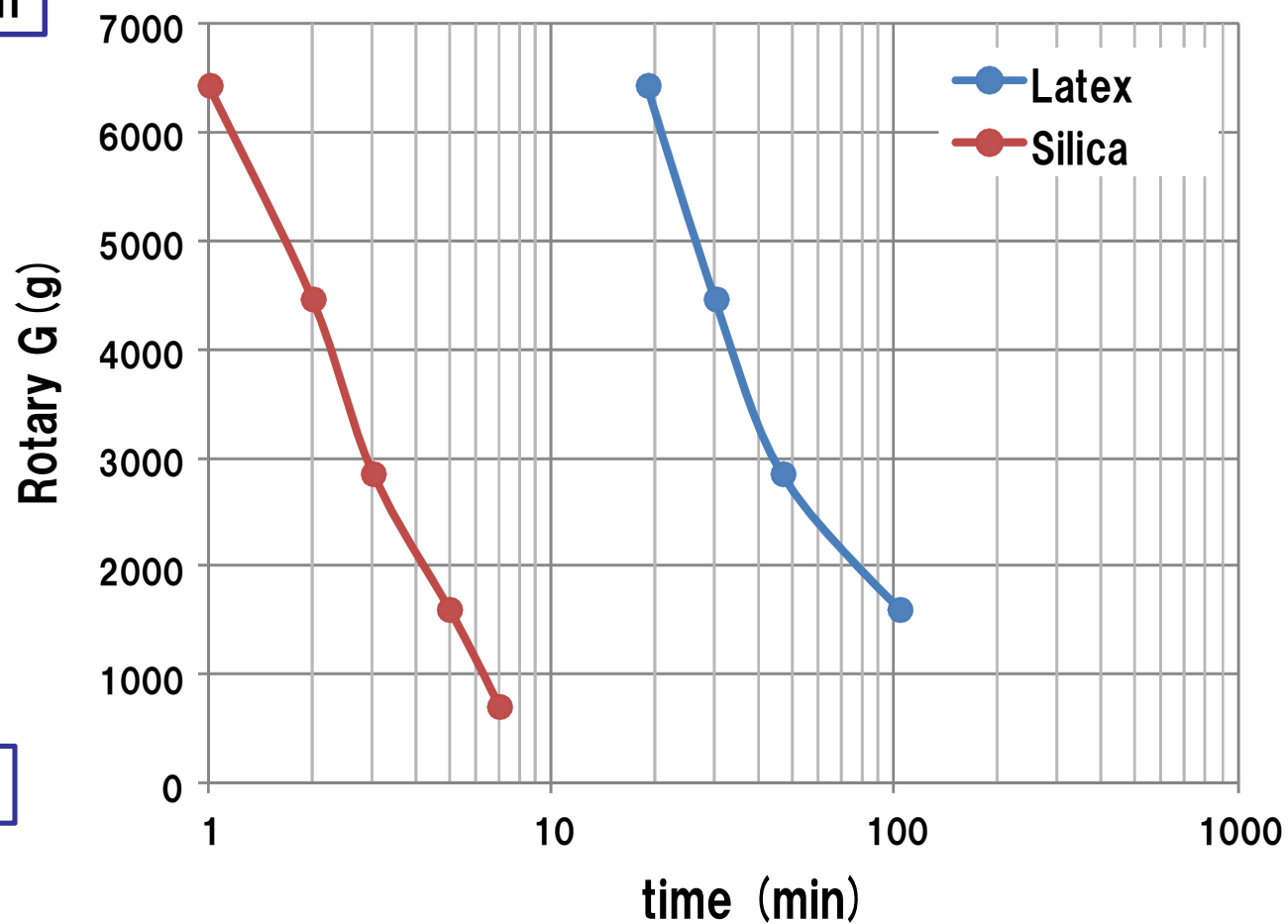
2-3hours Modifying

-Example of centrifugation-

Before centrifugation

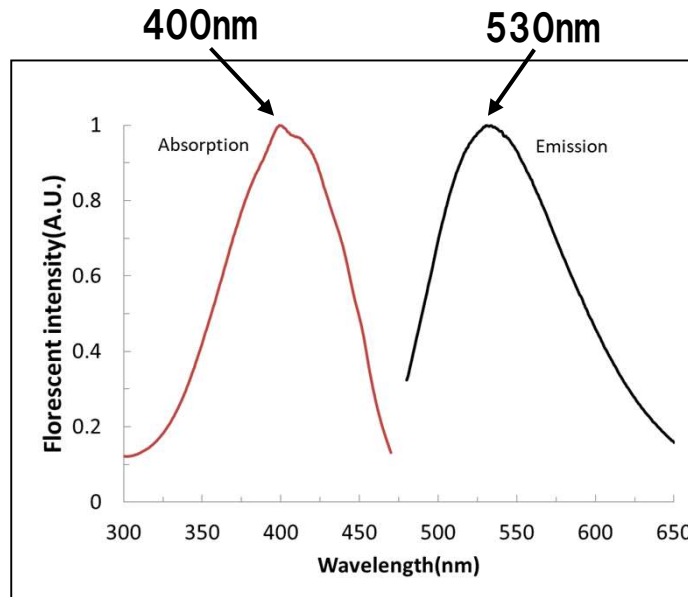


After centrifugation

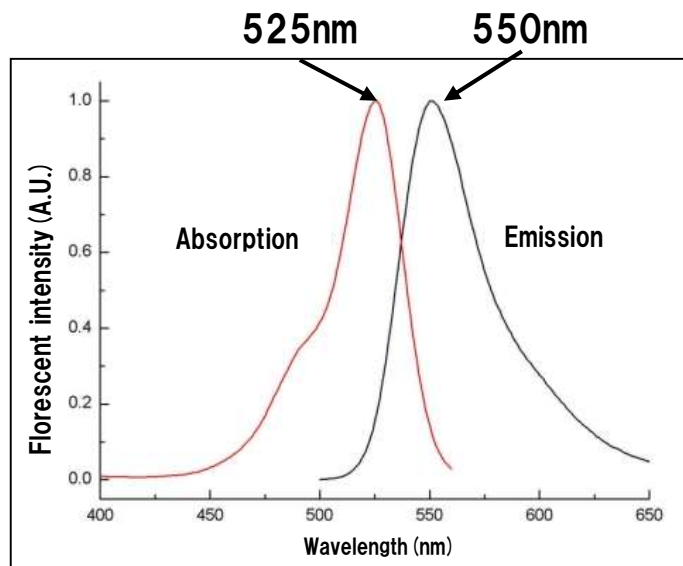


-Fluorescence spectrum-

QD-VG



QD-GO



Immunochromatographic fluorescent scope

Detecting the fluorescent of QuartzDot in the reactor requires exciting light source and detector, which matches the florescence spectrum shown above.

Q1. How should QuartzDot be stored?

A1. Store QD in a tube and back to the original box and keep them in a refrigerator (4–8°C).

Q2. Precautions handling QuartzDot.

A2. Use QuartzDot as dispersion liquid. When dried, it could be scattered. Suctioning nano-sized material may damage health.

Q3. Which Maleimide compound is appropriate to use?

A3. The Maleimide compound which dissolves in DMF would be appropriate.

Water-soluble Maleimide can also be used, but in such case, change DMF (see protocol in P3) to water.

Q4. How can QuartzDot be dispersed again after centrifugation?

A4. Re-dispersion is easily possible by ultrasonic process. Pipetting process will also make them re-disperse.

Q5. What kind of buffer solution should be used?

A5. Select one according to the antibody. Avoid using tris buffer (e.g. tris-hydrochloric acid buffer) , as it will flocculate QuartzDot.

Q6. How can the fluorescence of QuartzDot be observed?

A6. Select applicable light source and detecting filter. Make sure that the wavelengths of the exciting light and the fluorescence spectrum does not overlap (refer to p.5)

FEAE also provides immunochromatographic florescent scope.

Q7. Can other wavelengths for exciting light source and fluorescent one be used?

**A7. We plans to expand the color lineups of the fluorescent dyes.
For any special specification, please contact our sales division.**