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| Application | W/O emulsifying in a 96 well micro plate |
| Model | MICROPADDLE IMP-096A |

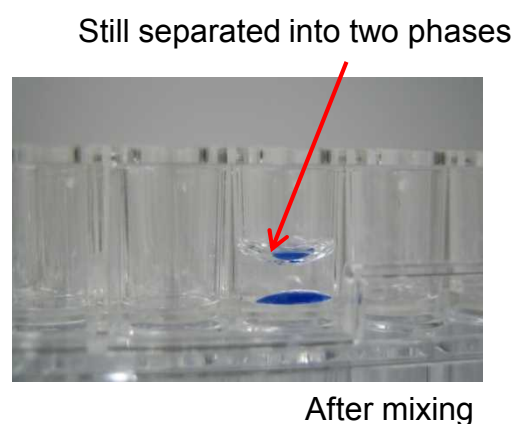
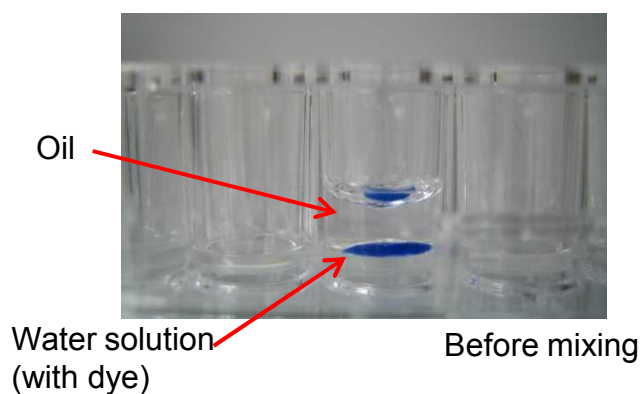
MICROPADDLE enables to produce water/oil emulsion in micro plate wells by introducing direct shear into two phases solution.

Orbital shaker

*orbital diameter 3mm

Mixing speed : 1000 min⁻¹

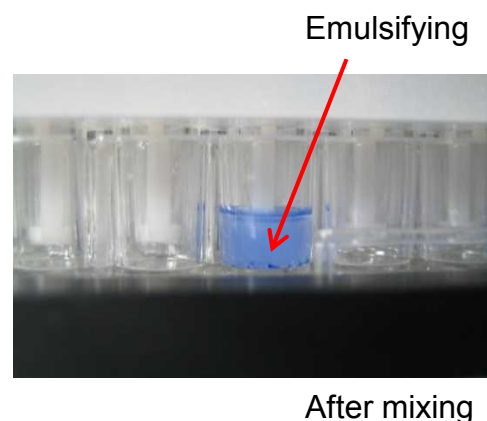
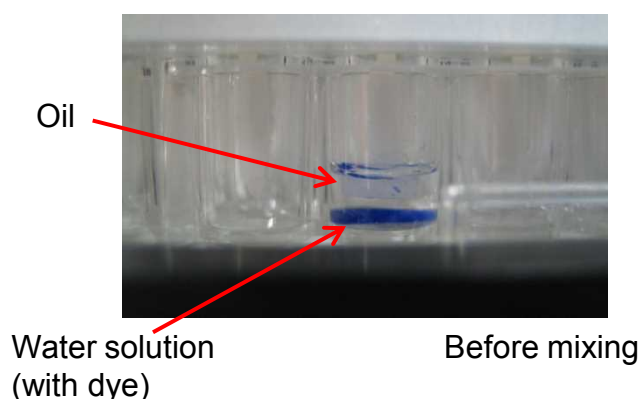
Mixing time : 1min.



MICROPADDLE

Mixing speed : 3000 min⁻¹

Mixing time : 1min.



By using MICROPADDLE, it's possible to obtain efficient mixing for the difficult mixing solution by the conventional orbital shaker.

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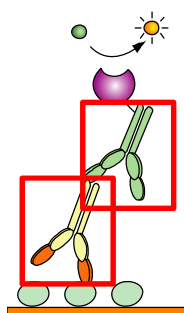


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| Application | Highly precise ELISA by using MICROPADDLE |
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| Model | MICROPADDLE IMP-096A |
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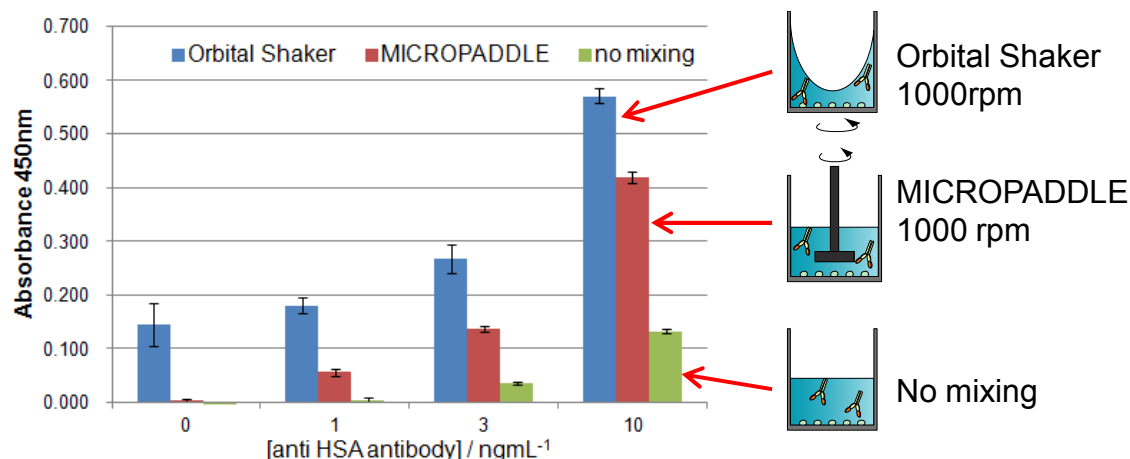
MICROPADDLE enables to shorten antibody binding time by highly efficient mixing. In contrast with the orbital shaker, gentle and efficient paddle mixing without fluctuation of air-water interface can reduce background noise of ELISA.

[Experimental protocol]



1. Antigen binding; HSA 100ug/mL in PBS 30min
2. Blocking; 0.2%BSA-PBS 30min
3. **Primary antibody; 10 ng/mL anti HSA antibody in 0.2%BSA-PBS 30min**
4. Wash; 0.05% Tween20 wash x 4
5. **Secondary antibody; 100 ng/mL mouse anti H/L antibody in PBS**
6. Wash; 0.05% Tween20 wash x 5
7. Substrate; 50uL OPD solution (1tab/10mL)

Effect of mixing method in the standard curve of antibody detection



| | Slope | Standard deviation | Sensitivity (Limit of Detection) |
|----------------|-------|--------------------|----------------------------------|
| MICROPADDLE | ◎ | ◎ | ◎ (0.19 ngmL ⁻¹) |
| Orbital Shaker | ◎ | △ | △ (1.2 ngmL ⁻¹) |
| No mixing | △ | ◎ | △ |

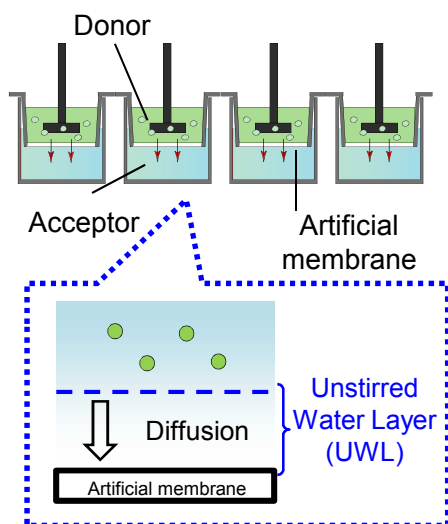
MICROPADDLE promotes antibody binding reaction, which enables to obtain good slope of standard curve. Moreover, highly efficient mixing with low background noise enables to lower limit of detection.

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|--------------------|----------------------------------------------------|
| Application | Reduction of unstirred water layer in PAMPA |
| Model | MICROPADDLE IMP-096A |

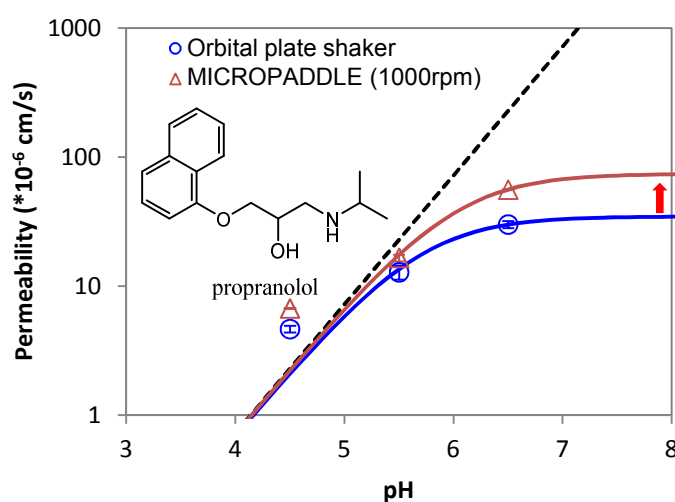
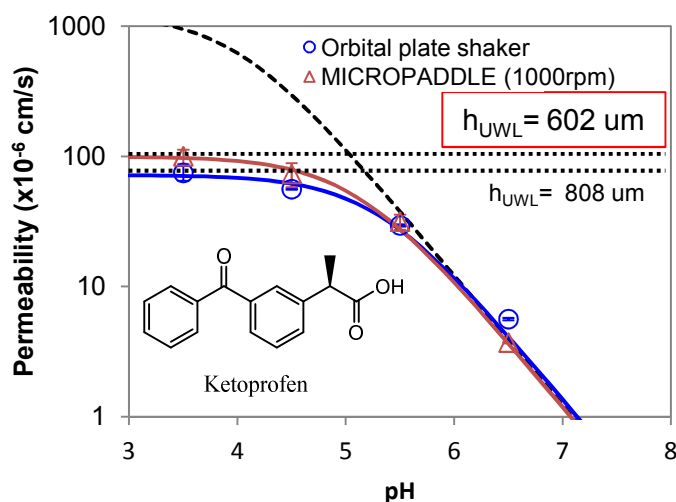
The accuracy of parallel artificial membrane permeation assay (PAMPA) data has been improved with a highly efficient mixing by MICROPADDLE. Direct paddle mixing with MICROPADDLE enables to reduce the unstirred water layer (hUWL) in 96 well microplate-based PAMPA more than the conventional plate shaker.



[Experimental conditions]

Temperature ; room (25 degree C)
Mixing rate ; 1000rpm
Mixing time ; 2 hours
Microplate ; Multiscreen-IP, Multiscreen Transport Receiver (Millipore)
Membrane ; PC, Egg lectine/n-dodecan
Solution ; buffer (pH3.5~6.5)
Sample compounds ; Ketoprofen, Propranolol
Volume ; 100uL (Donor), 300uL (Acceptor)

[Results]



Highly efficient mixing by using MICROPADDLE, reducing the unstirred water layer in the artificial membrane permeation assay, enables to correctly determine the membrane permeability of hydrophobic compounds.

Data from Asami Ono (Asahi Kasei Pharma, Shizuoka, Japan)

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