

BioBind™ - Streptavidin coated Microtiter Binding capacity and comparison with other commercial streptavidin coated microplates

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In this Technical Note we present the binding capacity of Thermo's streptavidin coated BioBind microplates and a comparison to the binding capacity of competitors' streptavidin coated microplates. The uniformity of different manufacturing batches is presented by lot-to-lot binding CV% and lot-to-lot biotin binding capacity.

Test method

200 µl FITC-biotin solution (0.25 nmol/ml) was added to streptavidin coated microplates. The microplates were incubated for 60 min at 37 °C on a shaker (900 rpm). 100 µl of the FITC-biotin solution was transferred to a white Microtiter microplate and the fluorescence was measured on Thermo Fluoroskan using filter pair ex. 485 nm / em. 538 nm. The fluorescence was compared to that of a 0.25 nmol/ml FITC-biotin solution that was added directly to the white microplate. In this way the amount of biotin bound to the streptavidin microplate could be determined. The results are expressed as pmol bound FITC-biotin/well.

To test the resistance of streptavidin coating for stringent washing conditions, half of the microplates was washed with a 0.1 M NaOH solution, followed by washing steps with a PBS-Tween-buffer. The binding capacity was determined as described above.

Results

The results of the binding capacity tests are summarized in Table 1. The binding capacity of Thermo BioBind microplates was 25 pmol/well and after washing with NaOH 23 pmol/well. The binding capacity of the tested competitor's microplates were between 7-19 pmol/well without NaOH-washing and between 5-15 pmol/well after NaOH-washing.

The CV% and binding capacities in different manufacturing lots are shown in Figures 1 and 2, respectively. Figure 1 shows biotin binding CV% of 18 lots of BioBind breakable strip microplates. Figure 2 shows the binding capacity of BioBind microplates without NaOH washing and after NaOH washing. The average binding capacity without NaOH-washing step was 26 pmol/well and after NaOH-washing 23 pmol/well.



| | Binding capacity (pmol/well) | Binding capacity after NaOH treatment (pmol/well) |
|----------------------------------|------------------------------|---|
| Thermo BioBind cat. no 95029 293 | 26 | 22 |
| Competitor 1 | 15 | 14 |
| Competitor 2 | 19 | 15 |
| Competitor 3 | 7 | 5 |
| Warm | Cold | Cold |
| Cold | Warm | Cold |

Table 1. Average binding capacity of streptavidin coated clear microplates

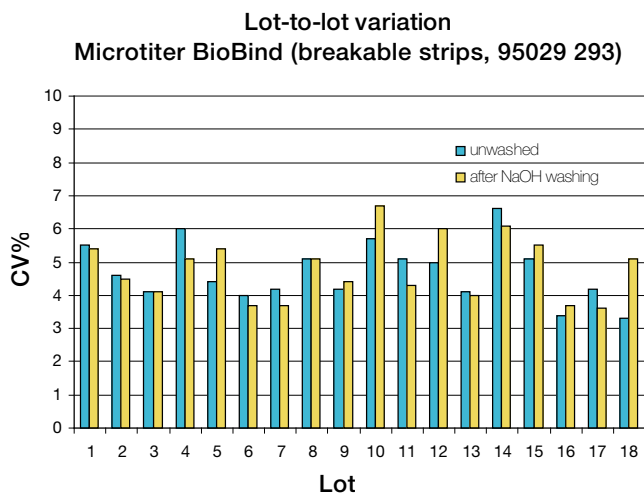


Figure 1. Biotin binding CV% of 18 lots of BioBind clear breakable strip microplates.

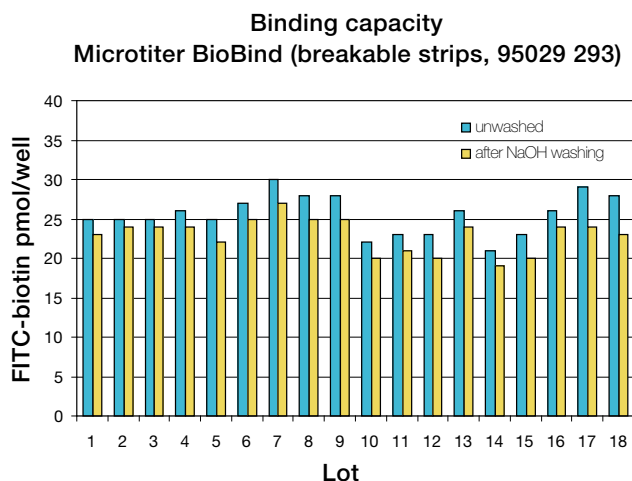


Figure 2. Binding capacity of 18 lots of BioBind clear breakable strip microplates.

| Cat. no | Product description | Bottom | Strip | Qty/bag | Qty/box |
|------------|-------------------------------|--------|---------------|---------|---------|
| 95 029 263 | BioBind Strip Assembled | Flat | Solid 1x8 | 1 | 5 |
| 95 029 293 | BioBind Strip Assembled | Flat | Breakable 1x8 | 1 | 5 |
| 95 029 273 | White BioBind Strip Assembled | Flat | Solid 1x8 | 1 | 5 |
| 95 029 283 | Black BioBind Strip Assembled | Flat | Solid 1x8 | 1 | 5 |

Conclusions

Thermo streptavidin coated BioBind Microtiter microplates showed a high binding capacity and an excellent lot-to-lot consistency. Stringent washing conditions had only a minor effect on the streptavidin coating.

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