Antibodies to action: using multiplex serological data to guide malaria control programmes

Chris Drakeley, IID, ITD

**ELISA**
Single antigen/readout per person

**Multiplex platforms**
Antibody responses to multiple antigens (families)
>500 proteins
Antigens with varying associations with exposure

Cumulative exposure
Change with age

Recent exposure
Mean drop over season

Sero-incidence
Time since parasitaemia

Helb, et al PNAS

~30 antigens associated with recent exposure
Combined top 10 hits accurately predict both days since last infection & incidence
Data interpretation for action

### Historical exposure vs. Recent exposure

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<thead>
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<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>Q</th>
<th>R</th>
<th>S</th>
<th>T</th>
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### Historical exposure

- Yes
- No

### Recent exposure

- Yes
- No

### Area

<table>
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