

Figure 1: Serological antigen selection used for selection of MS-associated antigens on pooled MS serum.

a) During a positive selection round, phage displaying the MS cDNA repertoire are incubated with pooled MS serum (1). IgGs present in serum (black) bind MS-specific antigens (black) displayed on phage (2). Phage antigen-IgG complexes are retained using an anti-human IgG capture antibody (3) while non-bound phage are washed away (4). Bound phage are eluted and used to reinfect bacteria (5). Selected phage are amplified and used for a subsequent selection round (6). **b)** During a negative selection round, HC serum is used for pre-incubation with the MS cDNA phage display library (1). After binding of aspecific phage clones (striped) (2), phage antigen-IgG complexes are bound with an anti-human IgG antibody (3). Non-bound phage are recovered (4) and used for infection and amplification (5). Phage are prepared and used for a subsequent positive selection cycle (6).

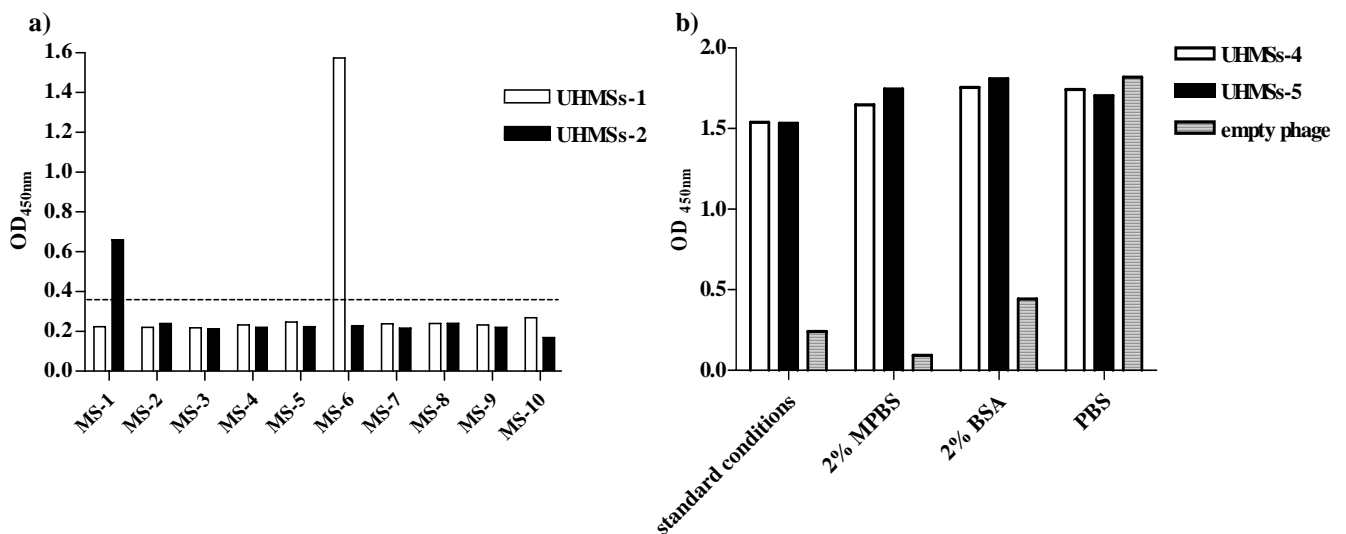


Figure 2: Immunoreactivity of phage clones determined by phage ELISA.

a) Immunoreactivity of phage clones UHMSs-1 and UHMSs-2. Each clone shows an increased immunoreactivity in 1 individual serum sample derived from the pool. **b)** Reactivity of 2 plastic binders, UHMSs-4 and UHMSs-5, was determined under several conditions: RαH IgG-coated 96-well plates in presence of serum (standard conditions), non-coated plates without incubation of serum blocked with either 2% MPBS, 2% BSA or only PBS. Binding intensity of UHMSs-4 and UHMSs-5 is the same under all conditions, in contrast with empty phage that showed reactivity comparable with normal background signals under standard conditions and 2% MPBS blocking conditions.

Table 1: Positive selection rounds on MS serum

Positive round	Input ^a	Output ^a	Ratio (O/I)
1	2.4×10^{13}	2.0×10^5	8.3×10^{-9}
2	0.5×10^{13}	1.6×10^6	3.2×10^{-7}
3	4.1×10^{13}	9.1×10^9	2.2×10^{-4}
4	3.1×10^{13}	7.5×10^9	2.4×10^{-4}
5	4.1×10^{13}	9.1×10^9	2.2×10^{-4}

^a Input (I) and output (O) titers are depicted as cfu/ml

Table 2: Depletion of cDNA products encoding IgG-transcripts

Round	Phage clones screened	Non-IgG phage clones	%IgG ^a
1 MS	20	18	10
2 HC	20	19	5
3 MS	30	15	50
4 HC	50	39	22

^a Percentage of IgG transcripts as determined by colony PCR and fingerprinting.