Supplementary Information

**Figure S1.** Library construction (A) The fragments ~700 bp containing VHH gene were amplified by first PCR; (B) The fragments ~400 bp were amplified by second PCR extension; (C) 24 colonies were randomly selected from constructed library to estimate the correct insertion rate by performing PCR.

**Figure S2.** The VHH genes against Cry 1Ac were selected from phage display library. (A) Cry1Ac protein detected by SDS-PAGE; (B) After two rounds of panning, Cry1Ac-specific VHHs were enriched 200 folds; (C) 95 colonies were randomly selected from two rounds of panning by Periplasmic extract ELISA to detect the positive colonies. The ratio higher than 2 was considered as positive.