Electronic supplementary information

1. Buffers and solutions

Phosphate-buffered saline (PBS: NaCl 137 mmol·L^{-1}, KCl 2.7 mmol·L^{-1}, Na_2HPO_4 10 mmol·L^{-1}, KH_2PO_4 2 mmol·L^{-1}, pH 7.40), borate buffer (BB: $Na_2B_4O_7$ 10 mmol·L^{-1}, pH 9.16), carbonate buffer solution (CBS: Na_2CO_3 15 mmol·L^{-1}, $NaHCO_3$ 34.9 mmol·L^{-1}, pH 9.60), PBST (PBS with 0.05% Tween 20, pH 7.40), phosphate-citrate buffer (citric acid 0.1 mol·L^{-1}, Na_2HPO_4 0.2 mol·L^{-1}, pH 4.3), TMB substrate solution (0.4 mL 2.5 g·L^{-1} TMB ethanol solution, 10 mL phosphate-citrate buffer, 10 μL 30% H_2O_2) were used in this paper.

2. Preparation of protein-hapten conjugates

A modified diazotization method was used to conjugate hapten with BSA. 40.6 mg DEHP hapten were dissolved in 750 μL ddH_2O, then 25 μL of concentrated hydrochloric acid was added in portions. After stirring for 15 minutes with heating, the mixture cooled in ice baths. 200 μL 1 mol·L^{-1} sodium nitrite solution was added drop wise into the mixture later, and then magnetically stirred for 30 min at 4°C. 0.5 g urea was added to remove unreacted sodium nitrite afterwards. The obtained supernate was added drop wise into BSA solution (15 mg·mL^{-1}, in BB) until the solution became singmon pink, and then stirred for 2 h at 4°C. After complete reaction, the suspension was dialyzed again at PBS for 3 d, and was stored at -20°C.

The DEHP hapten was coupled to OVA by a modified glutaraldehyde to produce a coating antigen. 40.6 mg DEHP hapten were dissolved in 1mL DMF. Then, the above

mixture was added drop wise into OVA solution (15 mg·mL^{-1}, in PBS). 100 μL 25% glutaraldehyde was sequentially added, and then magnetically stirred for 24 h at 4°C. After complete reaction, the suspension was dialyzed against PBS for 3 d, and was stored at -20°C.

3. Sample preparation

To improve contact between solvent and sample, for non-alcoholic samples, each of the samples (100 mL) was transferred to a glass bottle and incubated thrice with 20 mL hexane by ultrasonic processing for 30 min three times. After the three solvent fractions were combined, the extract was reduced to 2 mL using a rotary evaporator. For wine samples, after evaporating through the boiling water bath and cooling to room temperature, all of wine samples were dissolved in 2 mL hexane, and then were incubated 5 min at 28°C on a rotary shaker (250 rpm). A multilayer glass column packed with florisil was used for the purification of extracts. Subsequently, these samples' extract was eluted with 100 mL pesticide grade hexane, and then the eluent was collected. After all final extracts concentrated to 0.5 mL under a gentle stream of nitrogen in a water bath at 50°C, the final solution was concentrated and divided into two fractions: one for the BA-ELISA detection and the other for GC-MS analysis.

The treated samples for BA-ELISA detection were dried by nitrogen and diluted to the proper concentrations with PBSTM (PBST with 5% DMSO). The other fraction for GC-MS analysis was diluted with pesticide-grade hexane.

4. GC-MS analysis

GC-MS analysis was performed on GCMS-QP2010 Gas Chromatography and

Mass Spectrometer, which equipped with an HP-5MS fused silica capillary column capillary column (30 m×0.25 mm×0.25 μm). The column temperature program was 60°C held for 1 min, to 160°C at 6°C·min^{-1} held for 1 min, to 280 at 10°C·min^{-1} held for 1 min, and then at 10°C·min^{-1} to 300°C held for 6 min.