Supporting Information to:

Influence of Ginsenoside Rh₁ and F₁ on Human Cytochrome P₄₅₀ Enzymes

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The Calculation of Concentrations of Rb₁, R₇₁ and F₁ in the Gut lumen and Blood

We calculated their possible concentrations as follows: the contents (% w/w) of Rb₁, Re, Rg₁ in the standardized G115 ginseng extract are about 1.07%, 0.56%, 0.44%, respectively [1], and the common average recommended dosage for standardized G115 is about 700 mg a day that was taken orally as a single dose [2]. Thus, considering their molecular weights (1108, 946, and 800, respectively), the estimated amounts of Rb₁, Re, Rg₁ orally taken each day were about 6.8 µmol, 4.1µmol, 3.9 µmol, respectively.

Xu et al. reported that the oral bioavailability of Rb₁ was 4.35% [3], so the estimated amount of Rb₁ in the gut lumen is about 6.5 µmol after a single oral dose. Considering this amount and the reported average human gut volume (1650 mL/70 kg) [4], the Rb₁ concentration in the gut lumen of human after a single oral dose is calculated to be about 3.9 µM, and that in the blood is about 0.2 µM.

Different from Rb₁, Rh₁ and F₁ are likely to be derived from the hydrolysis of Re and Rg₁ occurring in the gastrointestinal tract [2], [5]. Their amounts in the gut lumen cannot be directly estimated because of the absence of quantitative data on biotransformation and absorption. However, their estimated amounts in the gut lumen should be less than the sum of the amounts of Re and Rg₁, namely, less than 8 µmol after a single oral dose. Thus, the sum of concentrations of Rh₁ and F₁ in the gut lumen of human after a single oral dose is calculated to be less than 4.8 µM, and that in blood is likely to be much less than 4.8 µM.

References

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3 Xu QF, Fang XL, Chen DF. Pharmacokinetics and bioavailability of ginsenoside Rb₁
and Rg1 from *Panax notoginseng* in rats. J Ethnopharmacol 2003; 84: 187-92
