Supplemental Materials and Methods S1

Preparation and Standardization of Study Soy Breads

Briefly, single lots of soy ingredients (Benesoy conventional soymilk powder Lot #9-096, Devansoy, Carroll, IA and ADM Baker's Nutrisoy, Lot #RF0508) were purchased and commercially blended into a single soy mixture (Coalescence LLC., Columbus, OH). The soy mix (800 lbs) was split with one half reserved for soy bread (SB) production whereas the other half was steamed (Ahn-Jarvis et al 2013), blended (ribbon blender1608, Federal Equipment Co., Cleveland, OH), and used for soy-almond bread(SAB) production. Whole almonds (50lbs) were purchased from Tropical Nut and Fruit Company (Grove City, OH), finely ground, and stored at -40ºC until production of soy-almond bread. Breads were manufactured by a commercial bakery (Columbus Baking Co., Westerville, OH) using a specialized, industrial-scale baking line. Finished bread loaves were sealed with cellophane, stored (-40ºC) in re-sealable polyethylene bags, and distributed to patients. Isoflavone composition and content in bread ingredients, almond meal, standardized soy mix, and steamed soy mix as well as from fresh, stored, and distributed SB and SAB were analyzed using HPLC equipped with photodiode array detector (PDA) (Waters Corp, Milford, MA). The HPLC equipment and conditions as well as preparation of the isoflavone standards are detailed by Ahn-Jarvis and colleagues (2013).

Quantification of Isoflavonoids in Blood Samples. Ultra-high performance liquid chromatography (Acquity, Waters Corp, Milford, MA) instrumentation was equipped with column heater (45°C), autosampler, PDA detector (Waters Corp, Milford, MA), and Fusion RP C_{18} (2.0 x 50 mm, 3μm, Phenomenex, Torrance, CA) column. The binary mobile phase was water (A) and acetonitrile (B) with a flow rate of 0.45 mL/min. The gradient began at 85:15

(solvent A:solvent B), increased to 70:30 in 3.5 minutes, 47.5:52.5 in 5 minutes, 5:95 6 minutes and then returned to 85:15 at 7.5 min. The UPLC eluent was interfaced with triple quadrupole mass spectrometer (Quattro Ultima, Micromass, Manchester, UK) negative ion electrospray. MS source parameters included: 2.8 kV capillary, 35 V cone, 20V RF1, 110L/hr cone gas, 400L/hr desolvation gas, 110 °C source block, 450°C desolvation, 12/12 resolution settings on quadrupoles, 3.0 x 10^{-3} mBar argon in collision. Multiple reaction monitoring were DHD 255>135,149at 25 and 17 eV respectively, daidzein 253>208, 224 at 30 and 25 eV, DHG 271>137, 165 at 25 and 17 eV, equol 241>121 at 12 eV, genistein 269>133, 181 at 27 and 25 eV, ODMA 257>109, 136 at 18 and 20 eV. Isoflavonoid standards were prepared daily.