

**Supplementary Table S1.** Information on commercial kimchi manufactured in Korea, China, and **United States**.

1

Country	Company (Product name)	Main Ingredients
Korea (K-1)	CJ (Sliced cabbage kimchi)	Cabbage, radish, red pepper powder, CJ anchovy sauce, CJ paste, CJ salted shrimp, salt, sugar, onion, green onion, garlic, ginger, probiotic broth, fructose
Korea (K-2)	Our home (Sliced cabbage kimchi)	Cabbage, radish, kimchi seasoning sauce, pepper powder, anchovy sauce, salted shrimp, garlic, ginger, salt, sugar, onion, green onion, probiotic broth, fructose, MSG
Korea (K-3)	Daesang (Sliced cabbage kimchi)	Cabbage, radish, glutinous rice paste, onion, red pepper powder, green onion, anchovy sauce, sugar, garlic, ginger, probiotic, salt
Korea (K-4)	Pulmuone (Sliced cabbage kimchi)	Cabbage, radish, glutinous rice paste, onion, red pepper powder, green onion, anchovy sauce, sugar, garlic, ginger, leek, probiotic, salt
Korea (K-5)	Dongwon (Sliced cabbage kimchi)	Cabbage, radish, glutinous rice paste, onion, red pepper powder, green onion, anchovy sauce, sugar, garlic, ginger, leek, pear, persimmon, kelp broth, salt, probiotic broth
China (C-1)	Daesang (Sliced cabbage kimchi)	Cabbage, radish, red pepper powder, green onion, onion, sugar, garlic, ginger, anchovy sauce, MSG, sorbitol, xanthan gum, corn syrup, leek, probiotic
China (C-2)	Pulmuone (Sliced cabbage kimchi)	Cabbage, radish, anchovy sauce, salt, red pepper powder, green onion, onion, sugar, garlic, ginger, xanthan gum, corn syrup, glutinous rice paste, probiotic
China (C-3)	NISSI FOOD (Kimchi)	Cabbage, radish, onion, anchovy sauce, red pepper powder, salt, ginger, malt sugar, xanthan gum
China (C-4)	Gyeongbokgung (Kimchi)	Cabbage, radish, anchovy sauce, onion, green onion, red pepper powder, garlic, ginger, alcohol, citric acid, xanthan gum, food color(turmeric), glutinous rice paste
China (C-5)	Sankou (Kimchi)	Cabbage, radish, anchovy sauce, salted shrimp, salt, sugar, onion, green onion, red pepper powder, garlic, ginger, glutinous rice paste, apple puree, kelp, potassium sorbate
United States (U-1)	Mother in law (House kimchi)	Cabbage, onion, red pepper powder, salt, garlic, ginger, organic sugar, anchovy sauce
United States (U-2)	Seoul (Original kimchi)	Cabbage, red pepper powder, carrot, garlic, green onion, cane sugar, sesame, onion, sea salt, ginger
United States (U-3)	Wildbrine (Kimchi)	Cabbage, green onion, sea vegetable, red pepper powder, sea salt, garlic, ginger
United States (U-4)	COSMOS (Kimchi)	Cabbage, kale, water, carrot, sugar, red pepper powder, garlic, sea salt, ginger, onion
United States (U-5)	Mother in law (Vegan)	Cabbage, onion, welsh onion, red pepper powder, salt, garlic, ginger, organic sugar
United States (U-6)	Seoul (Vegan kimchi)	Cabbage, red pepper powder, carrot, garlic, cane sugar, welch onion, sea salt, ginger

2