

Supplementary Tables

Table S1. Commercially available pharmaceutical products used in this study

Class	Drug	Product name	Dosage form	Strength (mg/tab)	Manufacturer	Single oral dose used	Nominal initial concentration (mg/L)
CCB	Nifedipine	Adalat [®]	CR tablet	20	Bayer Yakuhin, Ltd. (Osaka, Japan)	1 tablet	40
	Amlodipine	Norvasc [®]	OD tablet	5	Viartis Inc. (Tokyo, Japan)	1 tablet	10
Beta-blocker	Carvedilol	Artist [®]	tablet	10	Daiichi Sankyo Co., Ltd. (Tokyo, Japan)	1 tablet	20
	Bisoprolol	Meintate [®]	tablet	5	Tanabe Pharma Corporation (Osaka, Japan)	1 tablet	10
Statin	Rosuvastatin	Crestor [®]	OD tablet	2.5	AstraZeneca K.K. (Osaka, Japan)	1 tablet	5
	Atorvastatin	Lipitor [®]	tablet	10	Viartis Inc. (Tokyo, Japan)	1 tablet	20
ARB	Azilsartan	Azilva [®]	tablet	10	Takeda Pharmaceutical Company Ltd. (Osaka, Japan)	1 tablet	20
	Olmesartan medoxomil	Olmetec [®]	tablet	10	Daiichi Sankyo Co., Ltd. (Tokyo, Japan)	1 tablet	20

Table S2. Physicochemical properties and expected ionization states of the tested drugs

under the present experimental conditions

Drug	p <i>K</i> _a	logP	Expected predominant ionization state at pH 6.8
Nifedipine	> 13	1.82	Mainly nonionized
Amlodipine	9.45	1.64	Mainly cationic
Carvedilol	8.74	3.42	Mainly cationic
Bisoprolol	9.67	2.20	Mainly cationic
Rosuvastatin	4.00	1.92	Mainly anionic
Atorvastatin	4.31	5.39	Mainly anionic
Azilsartan	3.51	4.75	Mainly anionic
Olmесartan medoxomil	4.27	4.46	Mainly anionic

p*K*_a and logP values were obtained from DrugBank Online.¹⁹⁾ The expected predominant ionization state at pH 6.8 was interpreted based on the pH of the artificial intestinal fluid used in this study and the listed acid–base properties.

Table S3. HPLC conditions for drug quantification

Drug	Mobile phase	Column	Wavelength (nm)
Nifedipine	11:9 methanol and diluted 0.05 mol/L disodium hydrogen phosphate(1 → 5), adjusted to pH 6.1 with phosphoric acid	COSMOSIL [®] 5C ₁₈ -AR-II Packed Column 4.6 mm I.D., × 150 mm (Nacalai Tesque Inc., Kyoto, Japan)	230
Amlodipine	3:2 methanol and diluted 4.1 g/L potassium dihydrogen phosphate solution adjusted to pH 6.0 with 10.8 g/L disodium hydrogen phosphate dodecahydrate	COSMOSIL [®] 5C ₁₈ -AR-II Packed Column 4.6 mm I.D., × 150 mm (Nacalai Tesque Inc., Kyoto, Japan)	237
Carvedilol	11:9 methanol and diluted 2.7 g/L potassium dihydrogen phosphate solution adjusted to pH 5.0 with 3.5 g/L dipotassium hydrogen phosphate	COSMOSIL [®] 5C ₁₈ -AR-II Packed Column 4.6 mm I.D., × 150 mm (Nacalai Tesque Inc., Kyoto, Japan)	240
Bisoprolol	1:4 acetonitrile and diluted 4.08 g/L potassium dihydrogen phosphate solution adjusted to pH 2.5 with phosphoric acid	COSMOSIL [®] 5C ₈ -MS Packed Column 4.6 mm I.D., × 150 mm (Nacalai Tesque Inc., Kyoto, Japan)	225
Rosuvastatin	62:37:1 water, acetonitrile and diluted trifluoroacetic acid (1→100)	COSMOSIL [®] 5C ₁₈ -AR-II Packed Column 4.6 mm I.D., × 50 mm (Nacalai Tesque Inc., Kyoto, Japan)	242
Atorvastatin	53:27:20 solution*, acetonitrile and tetrahydrofuran	COSMOSIL [®] 5C ₁₈ -AR-II Packed Column 4.6 mm I.D., × 150 mm (Nacalai Tesque Inc., Kyoto, Japan)	244
Azilsartan	3:2 0.1 vol% trifluoroacetic acid and acetonitrile	CAPCELL [®] PAK C ₈ -DD-S5 4.6 mm I.D., × 150 mm (OSAKA SODA Inc., Osaka, Japan)	254
Olmesartan medoxomil	17:33 acetonitrile and diluted 2.04 g/L potassium dihydrogen phosphate solution adjusted to pH 3.0 with 1.73 g/L phosphoric acid	COSMOSIL [®] 5C ₁₈ -AR-II Packed Column 4.6 mm I.D., × 150 mm (Nacalai Tesque Inc., Kyoto, Japan)	250

The column temperature was 37°C, the injection volume was 10 µL, and the flow rate was 1.0 mL/min for all analyses, except for olmesartan medoxomil, for which a flow rate of 1.5 mL/min was used.

*Solution for atorvastatin: 10.5 g of citric acid monohydrate was dissolved in 900 mL of water, adjusted to pH 4.0 with 28% ammonia water, and diluted with water to 1,000 mL.

Supplementary Figures

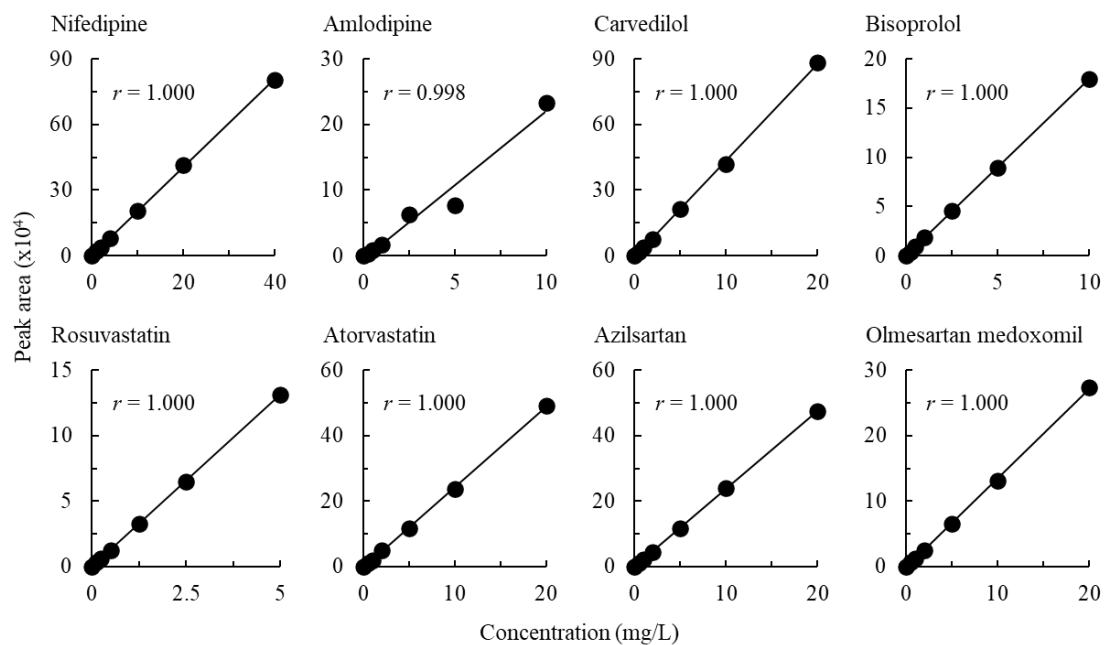


Fig. S1. Calibration curves for the tested drugs

The calibration ranges were 0.125–5 mg/L for rosuvastatin, 0.25–10 mg/L for amlodipine and bisoprolol, 0.5–20 mg/L for carvedilol, atorvastatin, azilsartan, and olmesartan medoxomil, and 1–40 mg/L for nifedipine.

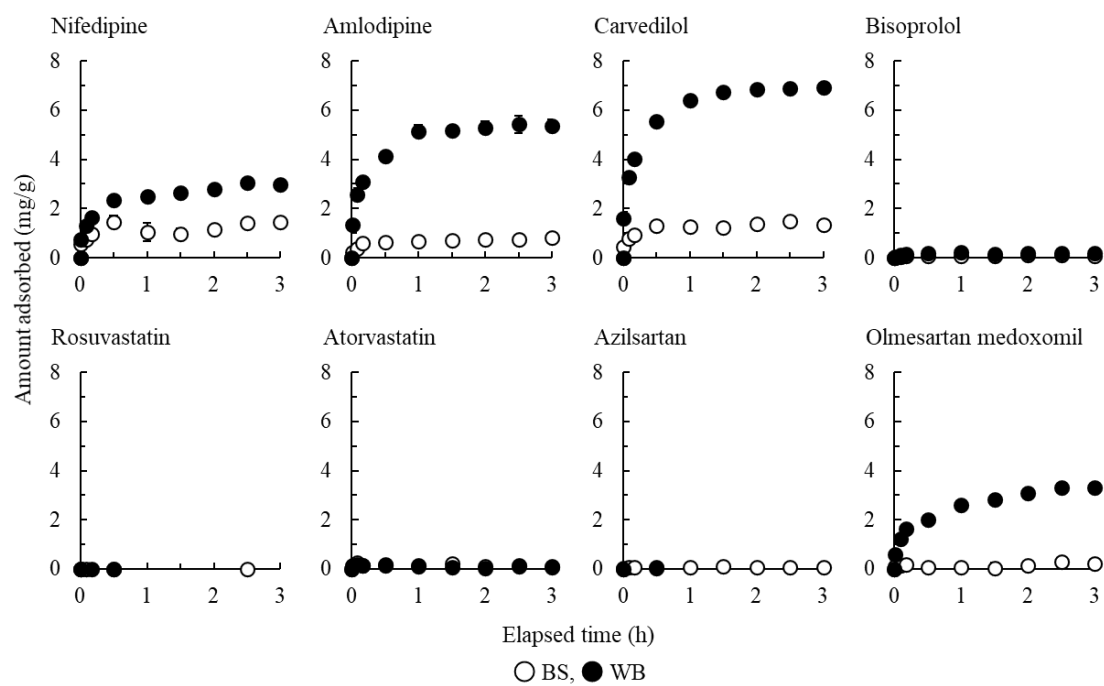


Fig. S2. Time profiles of drug adsorption amounts onto BS and WB

Data are presented as the mean $\pm$ standard error ($n = 3$). BS, basil seeds; WB, wheat bran.