

Electronic Supplementary Information

**Biological factors in plasma from diabetes mellitus patients enhance hyperglycaemia and
pulsatile shear stress-induced endothelial cell apoptosis**

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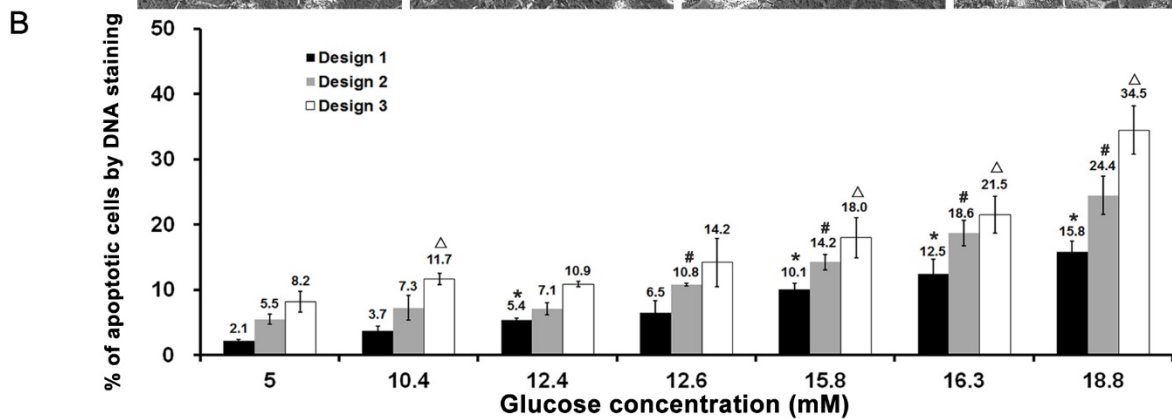
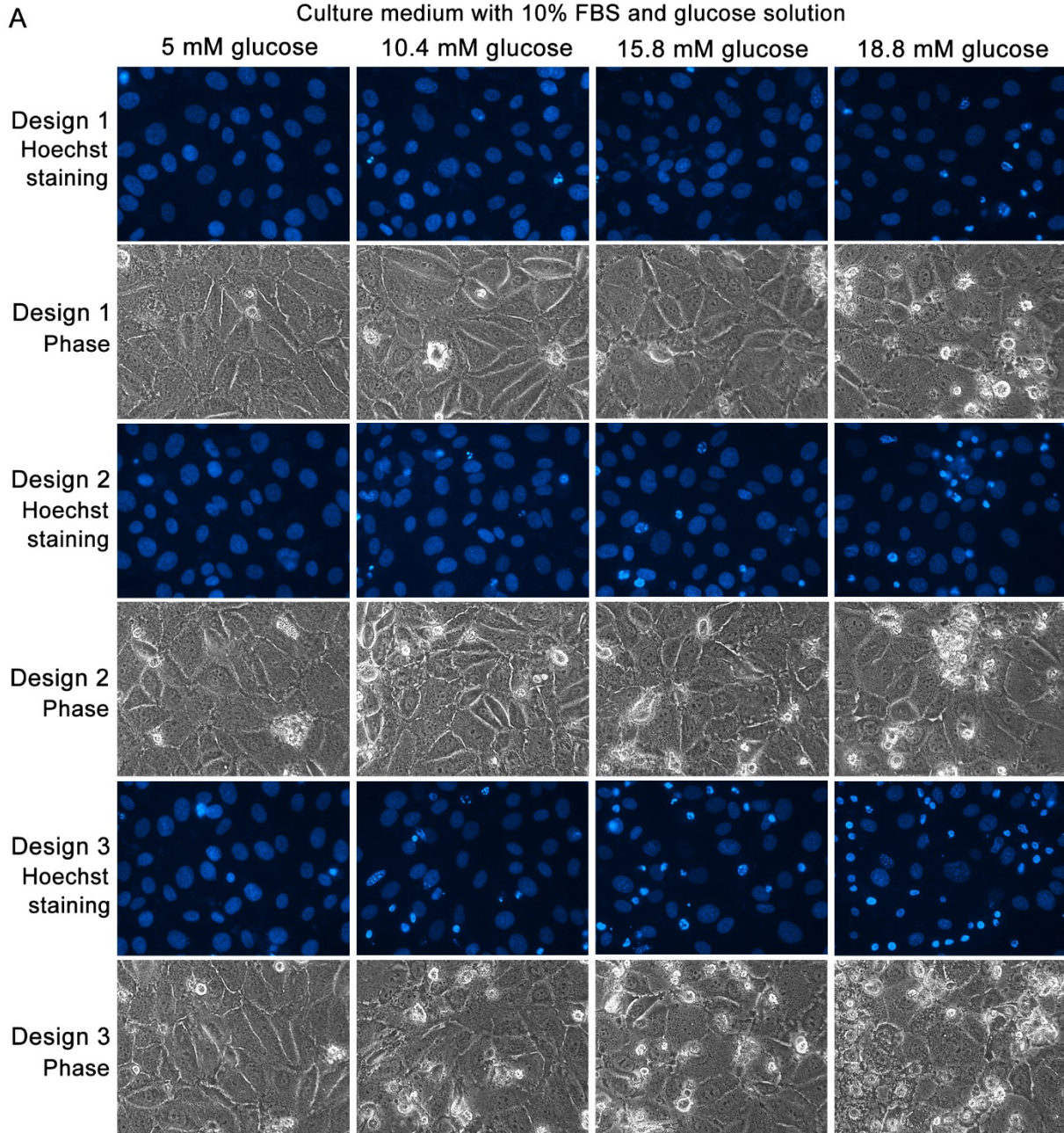


Figure S1. (A) Hoechst staining and phase images of HUVEC cells under different glucose concentrations and different microchannel designs using medium with 10% FBS and defined glucose solutions of which the concentrations were equivalent to the plasma samples, and (B) The percentage of apoptotic cells determined by analysing 1,000-2,000 cells by Hoechst staining under different glucose concentrations and different microchannel designs ($p < 0.05$ compared to 5 mM glucose in samples of A or B in microchannel design 1 ^{*}, design 2 [#] and design 3 ^Δ, respectively).

Table S1. Demographics, physical characteristics and concomitant conditions in healthy volunteers.

	Volunteer 1	Volunteer 2	Volunteer 3
Age	62	63	27
Sex	Female	Female	Female
Ethnicity	Chinese	Chinese	Indian
BMI	28.9	23	25.9
Smoking Status	Non-smoker	Non-smoker	Non-smoker
Concomitant hypertension	Yes	No	No
Concomitant hyperlipidaemia	No	Yes	No
ACE-I	Yes	No	No
Aspirin	Yes	No	No
Statin	No	Yes	No

ACE-I: Angiotensin Converting Enzyme Inhibitor, eGFR: Estimated GFR using the MDRD formula, BMI: Basal metabolic index calculated as weight in kg/(height in m)²

Table S2. Demographics, physical characteristics and concomitant Conditions in the type 2 DM patients.

	Patient 1	Patient 2	Patient 3	Patient 4	Patient 5	Patient 6
Age	39	50	53	61	58	65
Sex	Female	Male	Male	Male	Female	Male
Ethnicity	Chinese	Malay	Chinese	Chinese	Chinese	Chinese
BMI	28.1	29.3	28.2	27.9	30.4	24.9
Smoking Status	Non-smoker	Non-smoker	Non-smoker	Smoker	Non-smoker	Ex-smoker
Hypertension	Yes	Yes	Yes	Yes	Yes	Yes
Hyperlipidaemia	Yes	Yes	Yes	Yes	Yes	Yes
Aspirin	No	Yes	Yes	Yes	Yes	Yes
ACE-I	No	Yes	Yes	Yes	Yes	Yes
ARB	Yes	No	No	No	Yes	No
Metformin	Yes	Yes	Yes	Yes	Yes	Yes
Sulfonylurea	Yes	No	Yes	Yes	No	Yes
Insulin	Yes	Yes	No	No	Yes	Yes
Statin	Yes	Yes	Yes	Yes	Yes	Yes
Capillary blood glucose(mmol/l)	10.4	12.4	12.6	16.3	18.8	15.8
HbA1c (%)	10.0	9.6	11.2	9.2	11.5	10.6
eGFR	>60	50	45	>60	>60	38
Nephropathy	No	Mild	Mild	No	No	Mild
Retinopathy	No	No	No	No	No	No

ACE-I: Angiotensin Converting Enzyme Inhibitor, ARB: Angiotensin receptor blockers.

eGFR: Estimated GFR using the MDRD formula.