

Whole organ vascular casting and microCT examination of the human placental vascular tree reveals novel alterations associated with pregnancy disease

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Supplementary Table 1: Number of branches, length, tortuosity and diameter of vessels in the normal and FGR vascular casts.

	Normal Arterial (n = 6)	FGR Arterial (n = 6)	<i>p</i>	Normal Venous (n = 6)	FGR Venous (n = 6)	<i>p</i>
Total vessel length per placenta (mm) [†]	17823(11287-24614)*	5947 (5294 – 7247)*	0.002	8188 (7026 – 10446)	9395 (7334 – 13853)	0.818
Length density (mm/cm ³)	27.29 (19.65 – 42.44)*	14.82 (13.13 – 18.10)*	0.009	13.39 (12.18 – 22.94)*	32.10 (22.08 – 50.92)*	0.03
Number of segments [†]	6714 (5563 – 16280)*	3379 (2389 – 5035)*	0.009	5523 (4225 – 7664)	5142 (4321 – 5783)	0.39
Numerical density (per cm ³)	10.86 (9.09 – 27.72)	9.23 (6.83 – 11.20)	0.18	10.76 (6.32 – 15.15)	13.01 (11.30 – 25.90)	0.39
Total number of branches ^Ω	2493 (1324 – 3550)	1458 (815 – 2657)	0.24	2009 (1621 – 2475)	1883 (1374 – 2431)	0.59
Branch density (per cm ³)	4.21 (2.31 - 5.68)	3.19 (2.32 - 6.53)	0.94	4.12 (2.42 - 5.64)	5.81 (4.69 - 7.91)	0.13
Number of branch points ^Ω	1241 (659 – 1766)	727 (406 – 1323)	0.24	1001 (809 – 1233)	938 (685 – 1212)	0.59
Branch density (per cm ³)	2.09 (1.15 – 2.83)	1.59 (1.15 – 3.25)	0.94	2.06 (1.21 – 2.81)	2.89 (2.34 – 3.94)	0.13

Number of terminal						
branch points ^Ω	1252 (666 – 1784)	731 (409 – 1334)	0.24	1008 (812 – 1243)	945 (689 – 1219)	0.59
Branch density (per cm ³)	2.11(1.16 - 2.86)	1.60 (1.17 - 3.28)	0.94	2.07 (1.21 - 2.83)	2.91 (2.36 - 3.97)	0.13
Number of branch levels ^Ω						
	71 (41 – 93)	46 (38 – 74)	0.48	129 (84 – 194)	76 (67 – 152)	0.39
Branch density (per cm ³)	0.12 (0.07 - 0.15)	0.13 (0.10 - 0.17)	0.59	0.28 (0.12 - 0.42)	0.34 (0.15 - 0.55)	0.48
Tortuosity						
	5631 (4074 – 14903)*	2421 (1767 – 4392)*	0.03	5562 (3774 – 6741)	5593 (4322 – 14458)	0.82
Numerical density (per cm ³)	9.66 (6.19 – 25.39)	7.52 (4.34 – 10.13)	0.33	8.92 (6.66 – 13.89)	14.61 (10.64 – 32.02)	0.13
Diameter [†] (μm)						
	2374 (2060 – 2785)	2128 (1824 – 3263)	0.59	3466 (2648 – 5255)	2123 (1014 – 3307)	0.13
Diameter density (μm/cm ³)	4.00 (3.12 – 4.73)	5.94 (4.11 – 8.29)	0.13	5.68 (3.89 – 13.73)	5.97 (3.82 – 7.99)	0.82
Umbilical vessel						
diameter [†] (μm)	3810 (3105 – 4630)	3232 (2610 – 4368)	0.48	5746 (4999 – 6862)	5225 (2759 – 5924)	0.24

Data shown are median and interquartile range (IQR) in parenthesis. For diameter, data shown are median and IQR of the mean diameter of all vessel segments in the casts. Umbilical vessel diameter refers to the diameter of the largest vessel segment in the casts. † and ^Ω denote data generated on Avizo and Analyze software respectively. Data compared by Mann-Whitney test, * denotes p<0.05.

