

Supplementary Material

In-silico and In-vitro Analysis of the Novel Hybrid Comprehensive Stage II Operation for Single Ventricle Circulation

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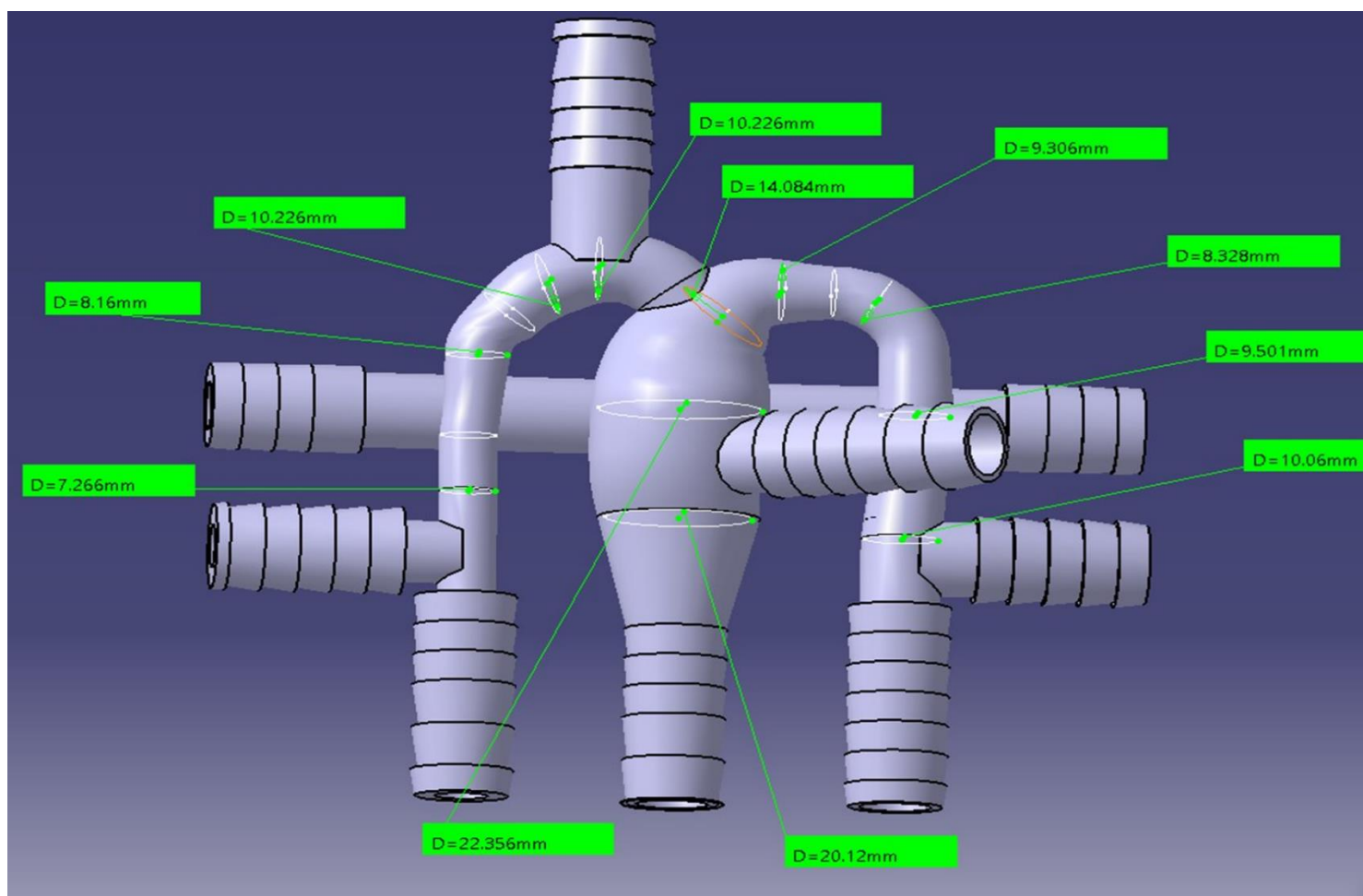


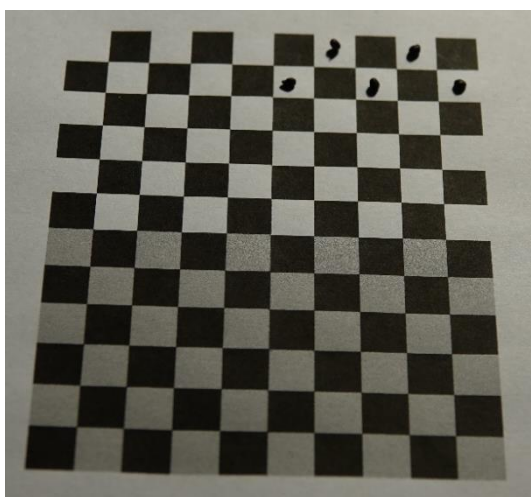
Figure S1. - Development of 3D CAD model of HCSII centerpiece from deidentified angiographic images for performing in-vitro studies. Dimension of the 3D phantom with the labeled diameters (in mm) of labeled branches using CATIA v5.

Table S1. Statistical analysis using One way ANOVA for in-vitro PRT study of patient 1

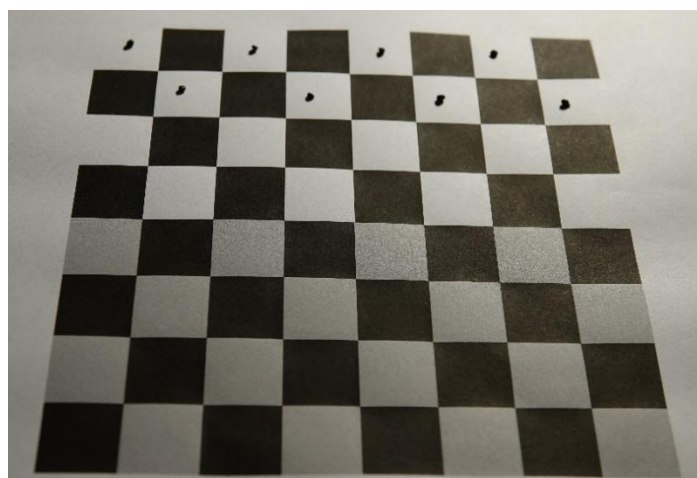
| Source of Variation | S.S. | df | M.S. | F | P-value | F crit |
|---------------------|----------|----|----------|----------|----------|----------|
| Between Groups | 0.715123 | 4 | 0.178781 | 0.747943 | 0.566046 | 2.641465 |
| Within Groups | 8.366052 | 35 | 0.23903 | | | |
| Total | 9.081175 | 39 | | | | |

Table S2. Statistical analysis using One way ANOVA for in-vitro PRT study of patient 2

| Source of Variation | S.S. | df | M.S. | F | P-value | F crit |
|---------------------|----------|----|----------|----------|----------|----------|
| Between Groups | 0.000556 | 2 | 0.000278 | 0.022839 | 0.977448 | 3.554557 |
| Within Groups | 0.218958 | 18 | 0.012164 | | | |
| Total | 0.219513 | 20 | | | | |



(a)



(b)

Figure S2. The binary checkerboard patterns used for HS camera calibration purposes in in-vitro PRT study containing (a) 5 x 6 (Binary) and (b) 8 x 8 (binary) patterns.

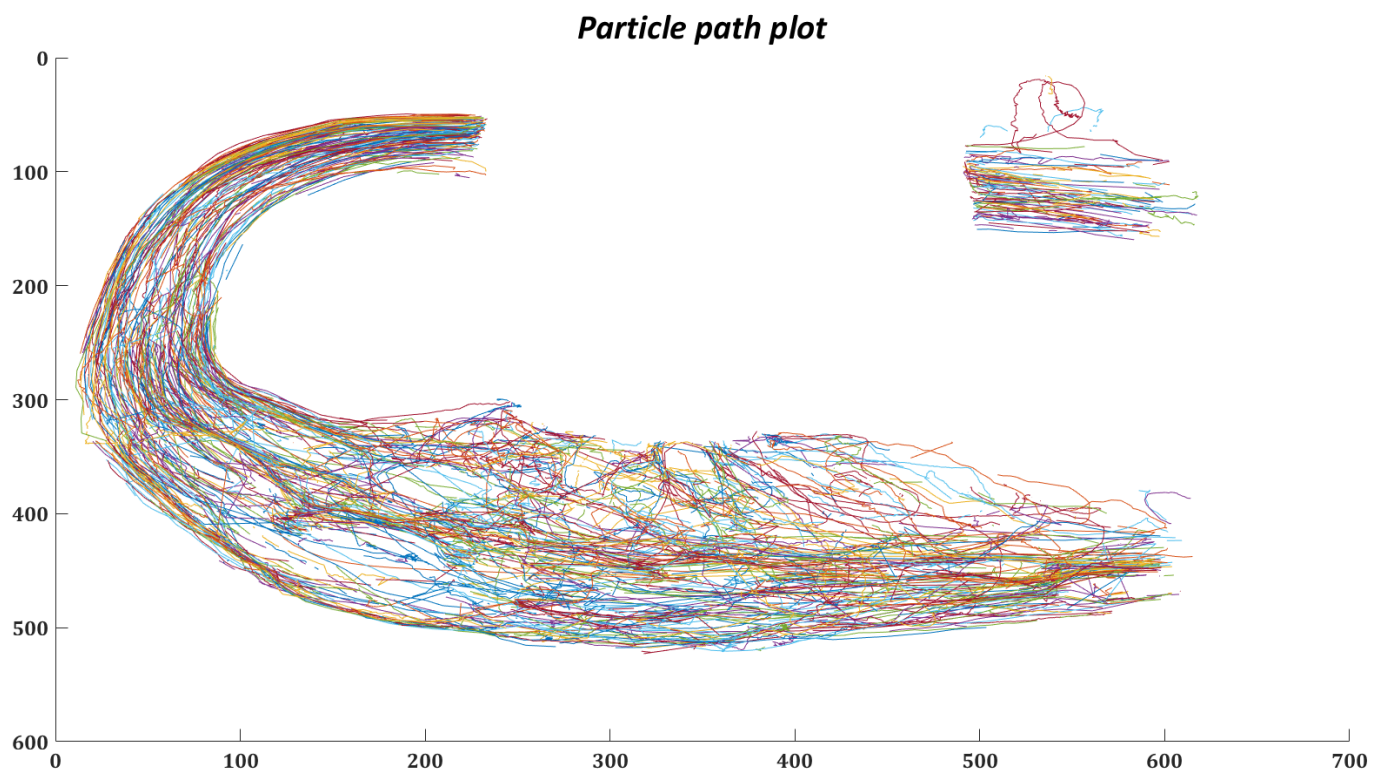


Figure S3. – Trajectory plot of tracked particles in the MPA conduit for patient 1 obtained from experimental trial 3.

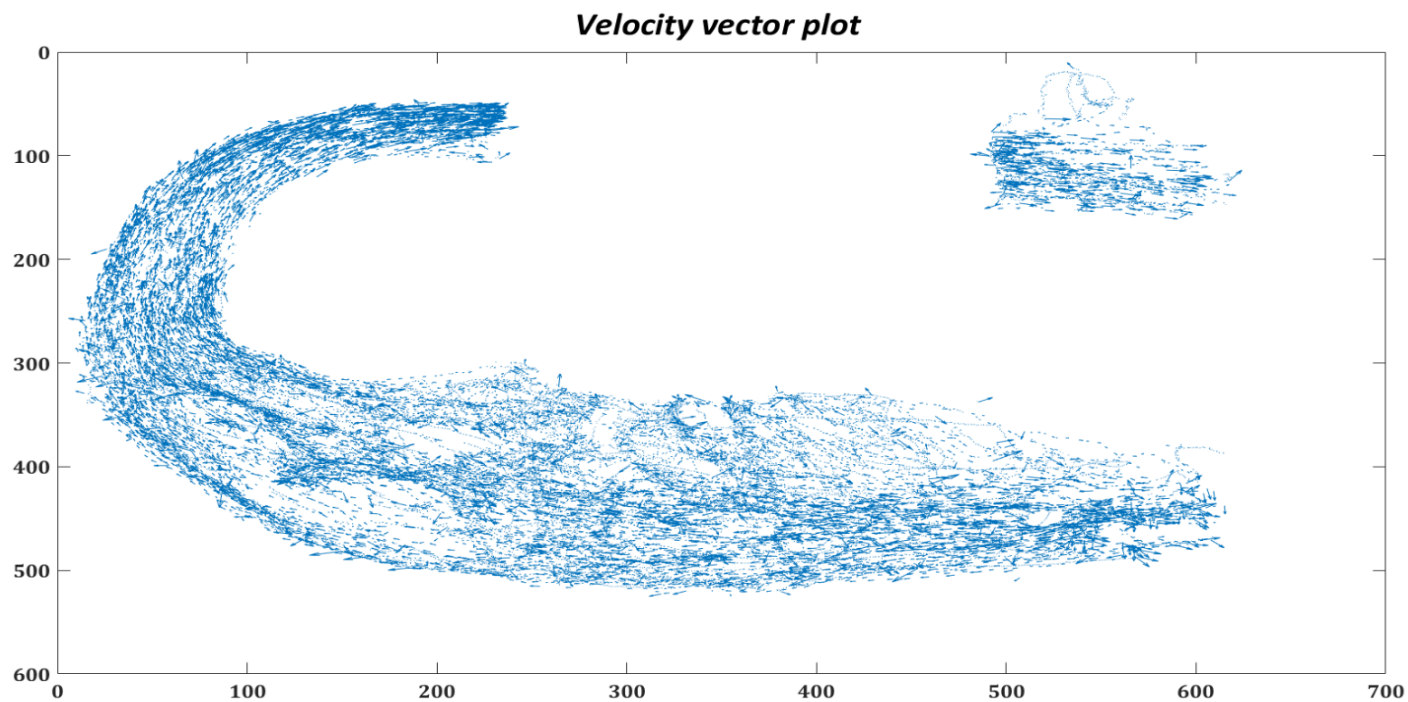


Figure S4. – Velocity vector plot of the tracked particles in the MPA conduit for patient 1. obtained from experimental trial 3

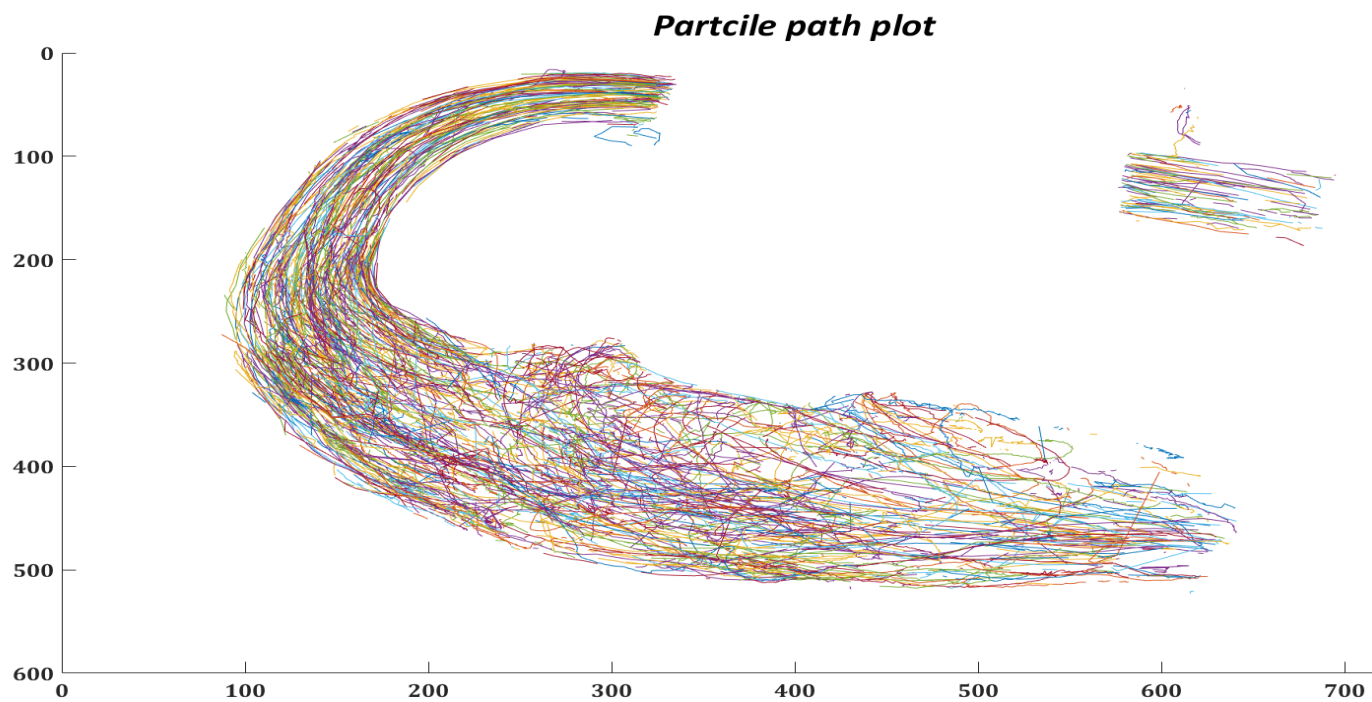


Figure S5. – The trajectory plot of tracked particles in the MPA conduit for patient 1 in experimental trial 4.

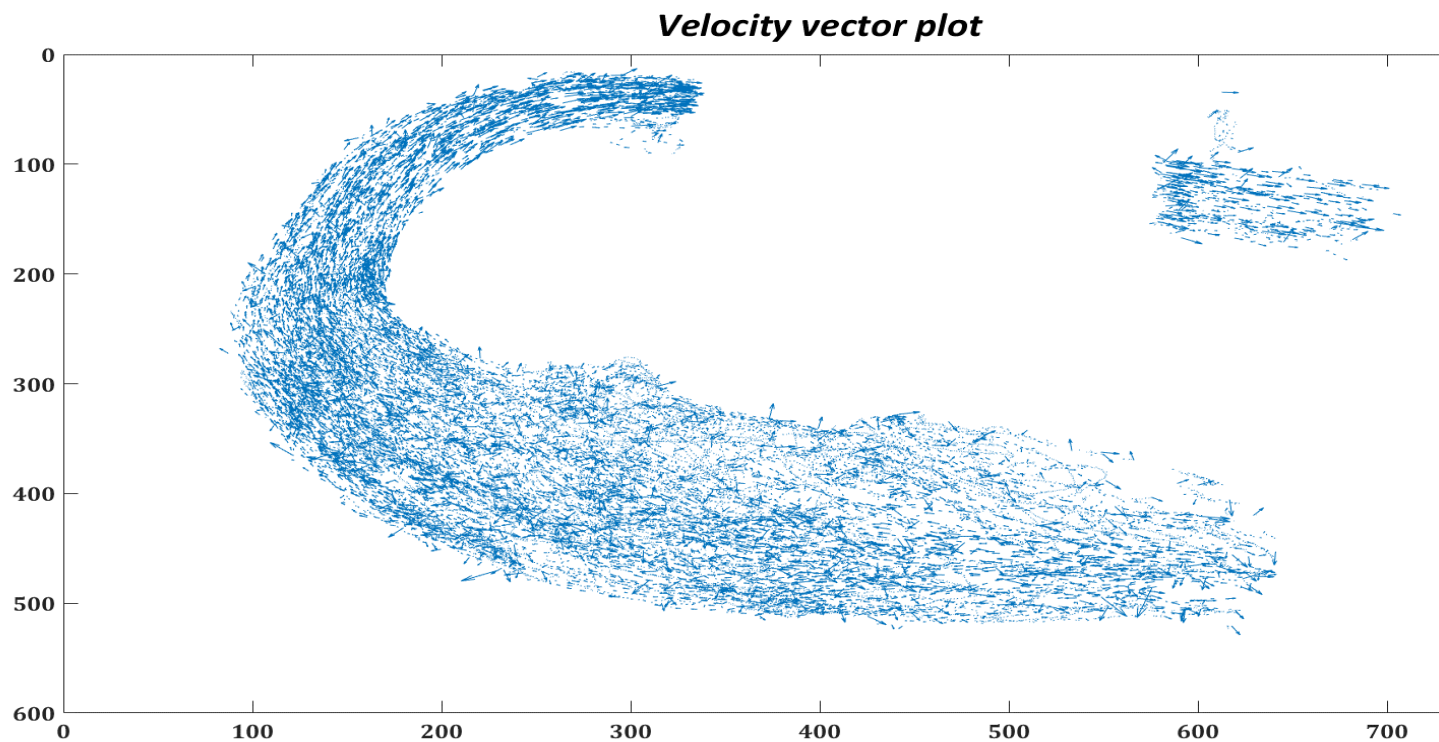


Figure S6. – Velocity vector plot of the tracked particles in the MPA conduit for patient 1 obtained from experimental trial 4.

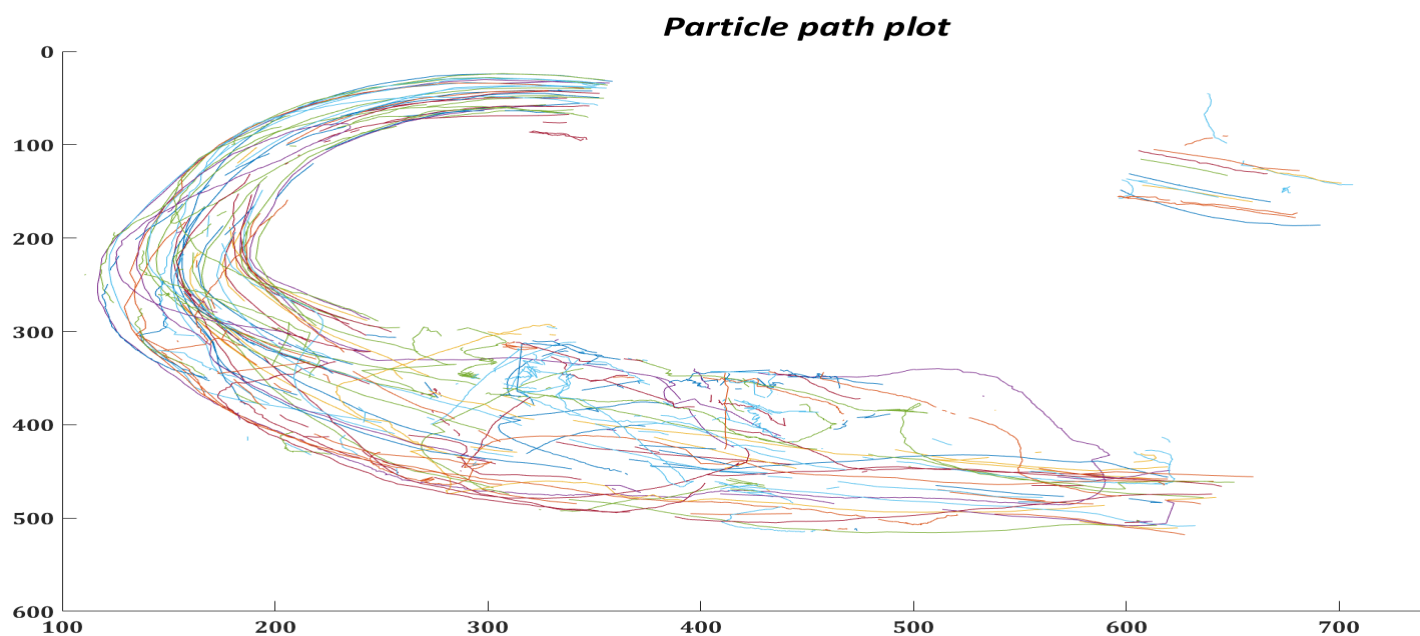


Figure S7. – The trajectory plot of tracked particles in the MPA conduit for patient 1 in experimental trial 5.

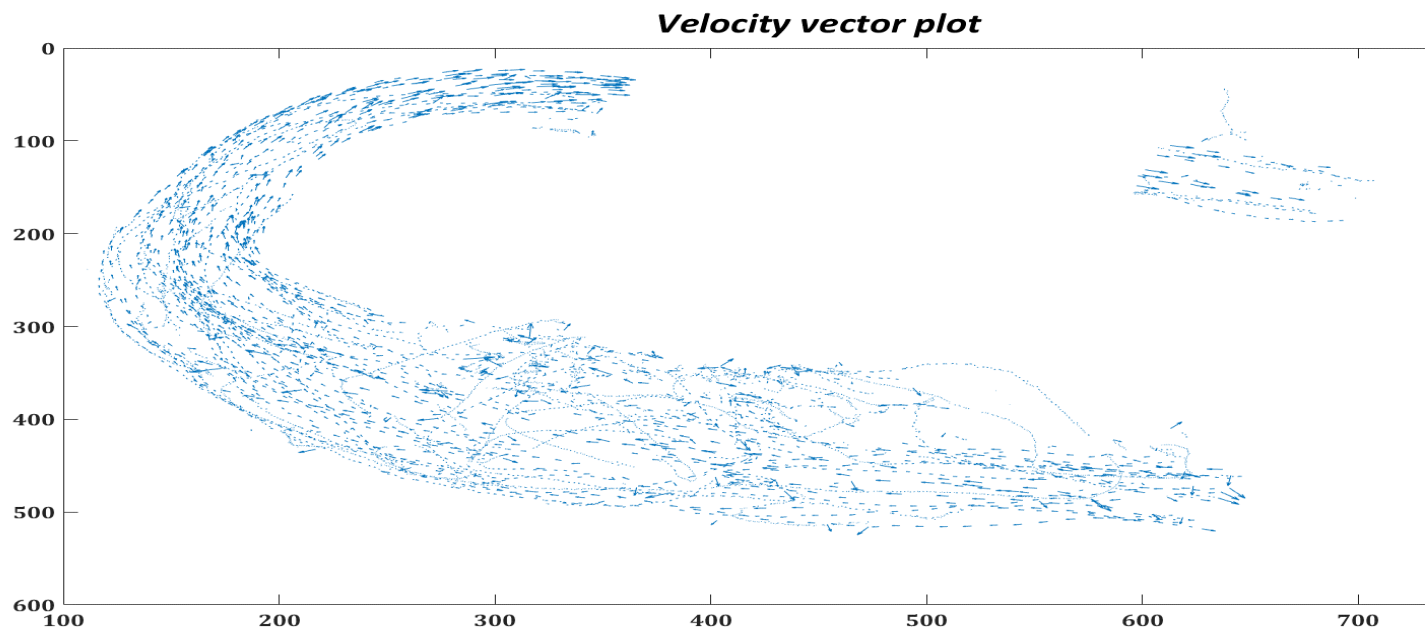


Figure S8. – Velocity vector plot of the tracked particles in the MPA conduit for patient 1 obtained from experimental trial 5.

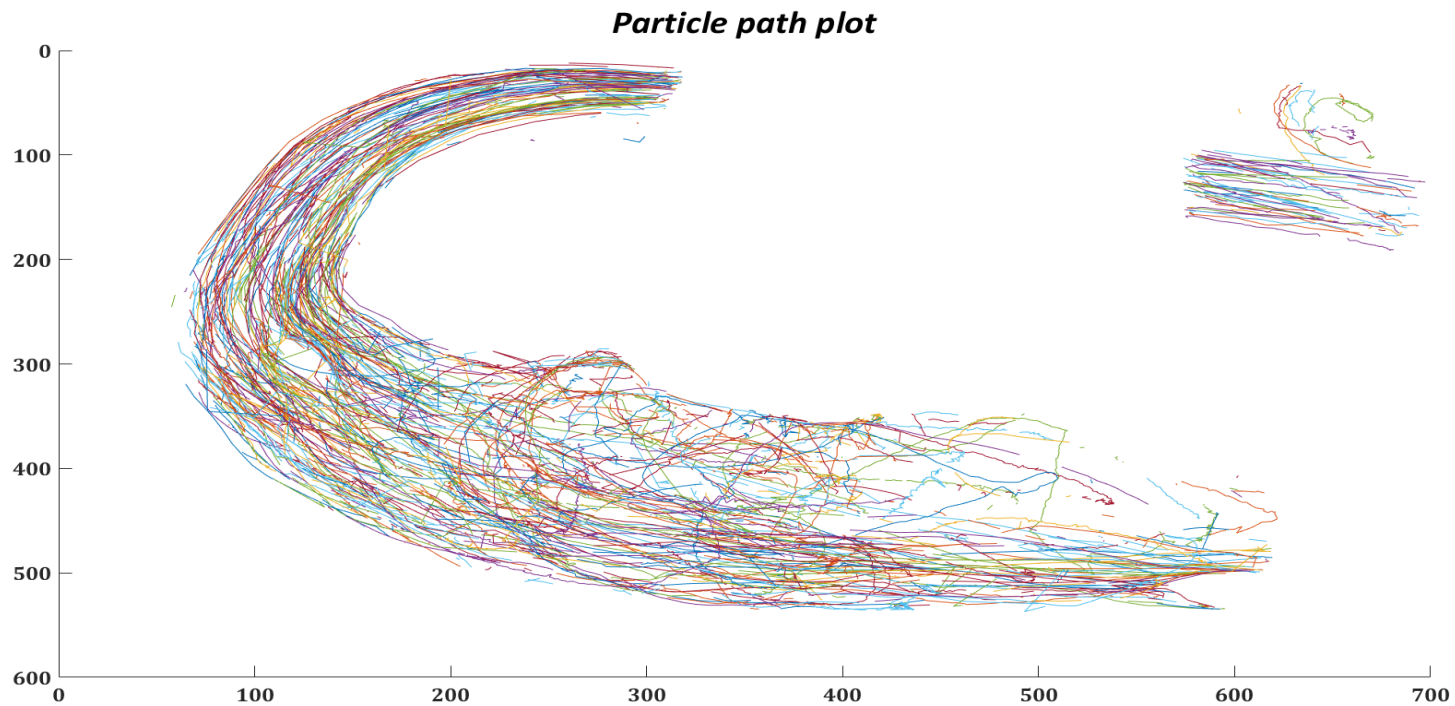


Figure S9. – The trajectory plot of tracked particles in the MPA conduit for patient 1 in experimental trial 6.

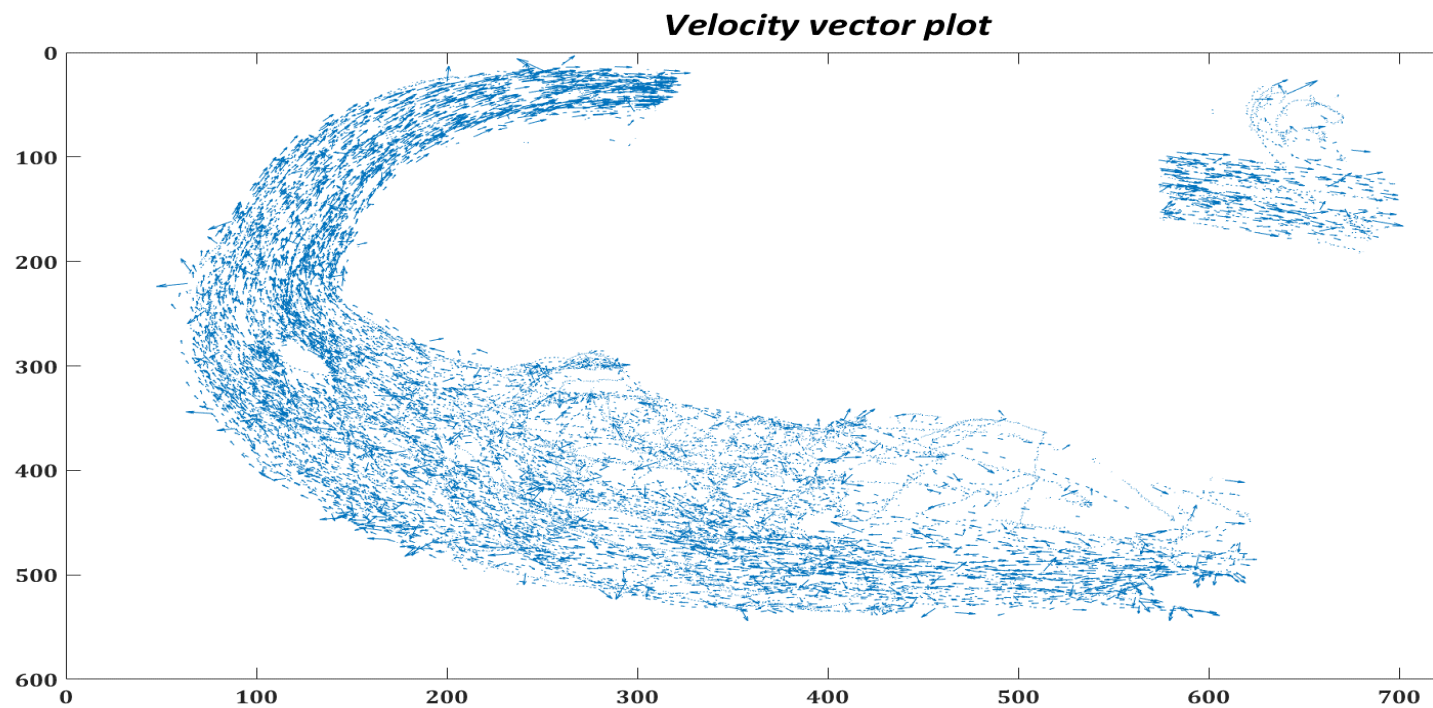


Figure S10. – Velocity vector plot of the tracked particles in the MPA conduit for patient 1 obtained from experimental trial 6.

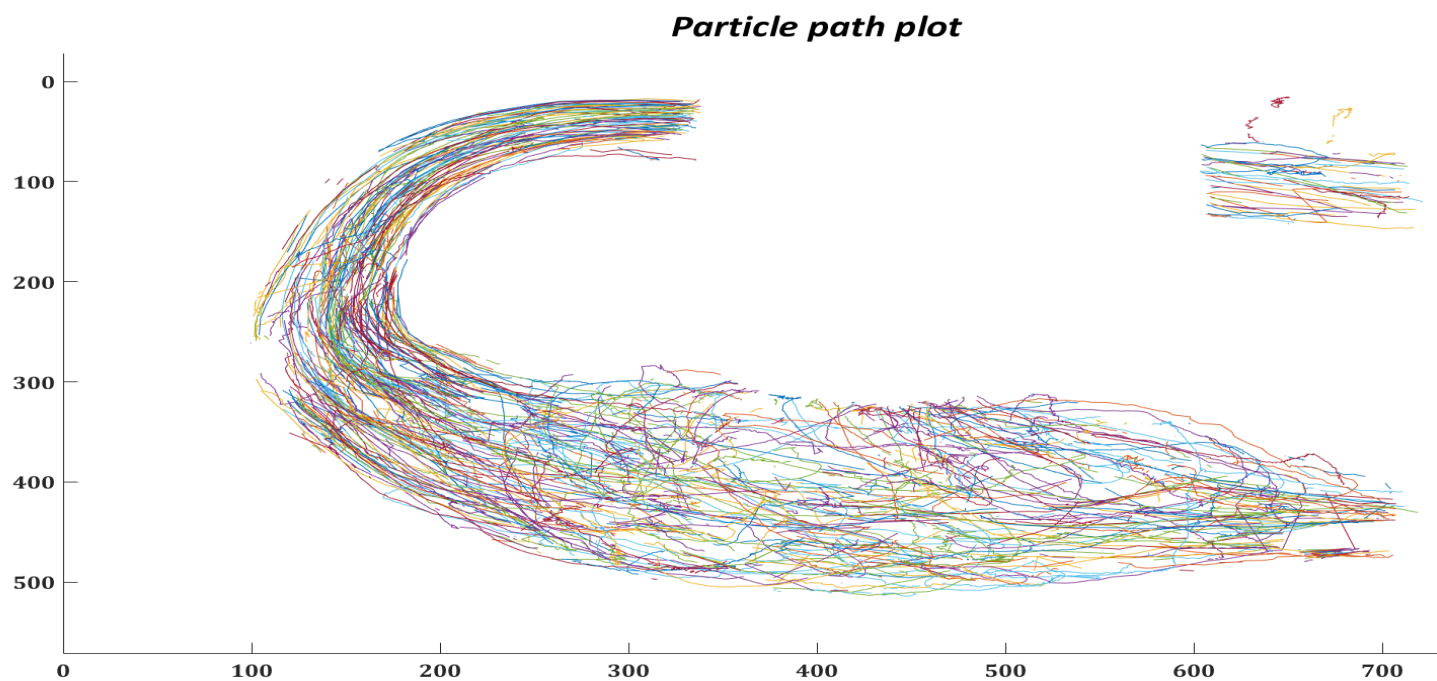


Figure S11. – The trajectory plot of tracked particles in the MPA conduit for patient 2 obtained from experimental trial 1.

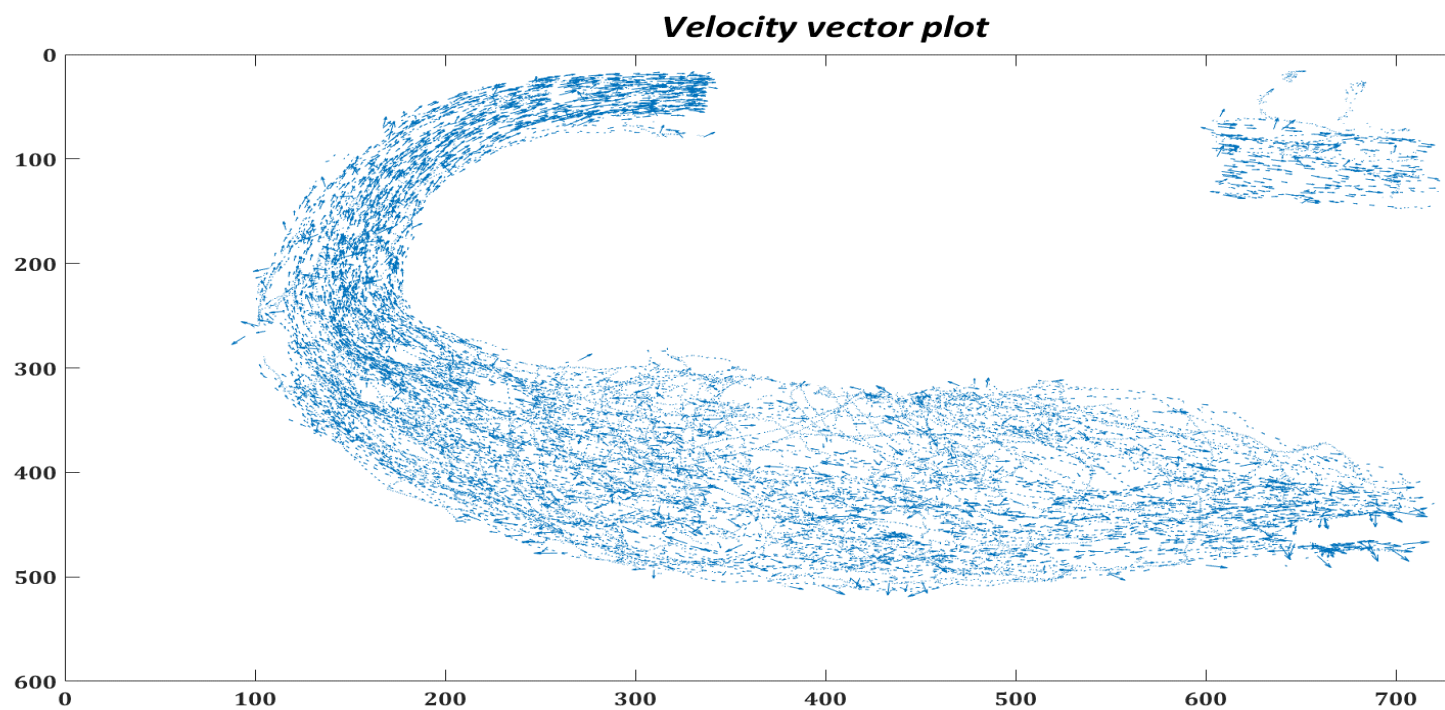


Figure S12. – Velocity vector plot of the tracked particles in the MPA conduit for patient 2 obtained from experimental trial 1.