

S5 Table: Pairwise similarities inferred from distance estimations of full length genomes of the *Circoviridae* family

| Accession | Circoviruses as comparison | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | Genera | |
|------------|------------------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|-------|
| this study | NeoCycloV-1 (19681/RSA) | | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.014 | 0.013 | 0.013 | 0.013 | 0.012 | 0.012 | 0.013 | 0.012 | 0.013 | 0.013 | 0.013 | 0.014 | 0.013 | 0.012 | 0.014 | 0.013 | 0.013 | 0.013 | 0.013 | 0.012 | 0.011 | 0.013 | 0.012 | 0.012 | | | |
| GQ4048455 | CyclovirusPK5034 | 64.9 | | 0.014 | 0.013 | 0.013 | 0.013 | 0.013 | 0.014 | 0.012 | 0.013 | 0.013 | 0.012 | 0.013 | 0.012 | 0.013 | 0.013 | 0.013 | 0.013 | 0.014 | 0.013 | 0.013 | 0.012 | 0.013 | 0.014 | 0.014 | 0.013 | 0.014 | 0.012 | 0.013 | 0.012 | 0.013 | 0.012 | 0.013 | |
| GQ404846 | CyclovirusPK5222 | 60.5 | 58.3 | | 0.012 | 0.013 | 0.014 | 0.013 | 0.012 | 0.012 | 0.013 | 0.013 | 0.013 | 0.013 | 0.014 | 0.012 | 0.013 | 0.013 | 0.013 | 0.013 | 0.014 | 0.012 | 0.012 | 0.013 | 0.012 | 0.012 | 0.013 | 0.013 | 0.013 | 0.012 | 0.014 | 0.013 | 0.013 | | |
| KJ641712 | BitCV_BtRp-CV-3/GD2012 | 59.8 | 57.8 | 57.6 | | 0.013 | 0.013 | 0.012 | 0.013 | 0.012 | 0.012 | 0.013 | 0.013 | 0.012 | 0.013 | 0.012 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.012 | 0.014 | 0.013 | 0.014 | 0.012 | 0.013 | 0.013 | 0.013 | 0.013 | 0.012 | 0.013 | | |
| HQ738637 | BitCV/USA/2009-TB | 58.8 | 57.9 | 56.6 | 55.4 | | 0.013 | 0.014 | 0.012 | 0.013 | 0.014 | 0.013 | 0.012 | 0.012 | 0.013 | 0.012 | 0.014 | 0.013 | 0.014 | 0.013 | 0.014 | 0.013 | 0.014 | 0.013 | 0.014 | 0.013 | 0.014 | 0.012 | 0.013 | 0.012 | 0.012 | 0.012 | 0.012 | | |
| KM382270 | BitCVPOA/2012/II | 58.7 | 57.6 | 58.2 | 57.9 | 55.5 | | 0.013 | 0.014 | 0.013 | 0.014 | 0.013 | 0.014 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.012 | 0.013 | 0.012 | 0.014 | 0.014 | 0.012 | 0.013 | 0.013 | 0.013 | 0.013 | 0.014 | | |
| KM382270 | BitCVPOA/2012/VI | 56.2 | 59.5 | 54.4 | 57.9 | 56.2 | 56.5 | | 0.013 | 0.013 | 0.013 | 0.013 | 0.012 | 0.012 | 0.013 | 0.013 | 0.014 | 0.012 | 0.013 | 0.013 | 0.014 | 0.012 | 0.013 | 0.013 | 0.012 | 0.013 | 0.013 | 0.013 | 0.012 | 0.012 | 0.013 | 0.012 | 0.012 | | |
| NC_014928 | CyVPKgoat111/PAK/2009 | 58.9 | 55.9 | 65.7 | 54.2 | 56.7 | 58.0 | 52.8 | | 0.013 | 0.013 | 0.013 | 0.013 | 0.014 | 0.013 | 0.013 | 0.014 | 0.013 | 0.014 | 0.013 | 0.014 | 0.013 | 0.014 | 0.013 | 0.014 | 0.013 | 0.013 | 0.013 | 0.012 | 0.012 | 0.012 | 0.012 | 0.014 | | |
| KC512920 | DfCyV-8_AU-DFB007B-2010 | 54.8 | 56.1 | 58.2 | 56.3 | 53.4 | 57.2 | 62.8 | 55.6 | | 0.013 | 0.012 | 0.014 | 0.013 | 0.012 | 0.013 | 0.013 | 0.012 | 0.013 | 0.014 | 0.013 | 0.014 | 0.013 | 0.012 | 0.013 | 0.013 | 0.013 | 0.012 | 0.012 | 0.013 | 0.014 | 0.013 | 0.013 | | |
| KC512918 | DfCyV-6_US-DFKWGX-2012 | 57.4 | 55.0 | 55.7 | 53.0 | 53.7 | 57.1 | 56.9 | 55.0 | 55.0 | | 0.014 | 0.013 | 0.012 | 0.013 | 0.012 | 0.014 | 0.013 | 0.012 | 0.013 | 0.013 | 0.013 | 0.013 | 0.012 | 0.013 | 0.013 | 0.012 | 0.012 | 0.013 | 0.012 | 0.012 | 0.013 | | | |
| KF031470 | HumanCVVN_ps1 | 44.2 | 43.8 | 44.6 | 44.4 | 44.6 | 45.6 | 44.8 | 43.7 | 44.9 | 46.9 | | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.012 | 0.013 | 0.013 | 0.012 | 0.012 | 0.013 | 0.013 | 0.012 | | | | |
| NC_014930 | CyV_NGchicken15/NGA/2009 | 58.6 | 56.9 | 59.5 | 55.9 | 56.0 | 55.2 | 53.3 | 58.7 | 54.3 | 54.2 | 43.9 | | 0.012 | 0.013 | 0.014 | 0.013 | 0.013 | 0.013 | 0.012 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.012 | 0.012 | 0.013 | 0.012 | 0.012 | | | | |
| GQ404849 | CyVChimp11 | 58.6 | 57.5 | 60.9 | 56.1 | 59.1 | 55.4 | 54.5 | 60.3 | 57.0 | 54.1 | 42.7 | 63.9 | | 0.014 | 0.013 | 0.013 | 0.013 | 0.012 | 0.014 | 0.013 | 0.012 | 0.013 | 0.013 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | | | |
| NC_014927 | CyVPKgoat21/PAK/2009 | 47.5 | 46.0 | 47.4 | 47.0 | 46.2 | 46.4 | 47.0 | 45.2 | 45.7 | 49.5 | 65.6 | 45.6 | 45.8 | | 0.013 | 0.012 | 0.014 | 0.013 | 0.014 | 0.013 | 0.014 | 0.012 | 0.012 | 0.013 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | | | |
| JF938080 | BitCVZS/China/2011YN-BitCV-3 | 56.3 | 55.8 | 58.3 | 56.3 | 52.7 | 57.8 | 57.6 | 57.2 | 58.3 | 68.1 | 45.6 | 55.8 | 56.2 | 48.0 | | 0.013 | 0.013 | 0.013 | 0.014 | 0.012 | 0.012 | 0.013 | 0.013 | 0.012 | 0.013 | 0.013 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | | |
| JF938081 | BitCVZS/China/2011YN-BitCV-4 | 56.1 | 60.2 | 61.1 | 57.7 | 60.0 | 56.0 | 57.1 | 58.6 | 55.3 | 54.0 | 43.7 | 60.6 | 62.1 | 45.8 | 56.5 | | 0.013 | 0.013 | 0.014 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.013 | 0.013 | | | |
| KJ641717 | BitCVBtIsp-CV/GD2012 | 54.5 | 55.1 | 55.2 | 54.6 | 52.9 | 60.4 | 54.6 | 54.1 | 53.9 | 53.6 | 45.1 | 54.2 | 52.2 | 45.7 | 55.7 | 53.9 | | 0.014 | 0.013 | 0.012 | 0.013 | 0.014 | 0.013 | 0.013 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | | | |
| KJ641734 | BitCVBtVS-CV/SC2013 | 54.4 | 54.2 | 53.8 | 56.3 | 53.9 | 57.0 | 63.7 | 53.0 | 59.7 | 55.9 | 46.0 | 54.0 | 55.0 | 46.6 | 56.3 | 55.8 | 53.6 | | 0.013 | 0.012 | 0.013 | 0.007 | 0.013 | 0.014 | 0.012 | 0.013 | 0.013 | 0.013 | 0.012 | 0.014 | 0.012 | 0.012 | | |
| KJ641728 | BitCVBtPa-CV-2/NX2013 | 53.3 | 53.5 | 55.4 | 52.6 | 50.3 | 54.3 | 54.7 | 54.1 | 55.9 | 59.5 | 44.4 | 51.9 | 51.8 | 46.2 | 58.1 | 53.3 | 52.4 | 55.1 | | 0.013 | 0.012 | 0.014 | 0.013 | 0.014 | 0.012 | 0.012 | 0.013 | 0.013 | 0.011 | 0.012 | 0.012 | 0.012 | | |
| KJ641720 | BitCVBtTp-CV-2/GX2012 | 54.0 | 55.4 | 55.4 | 54.6 | 53.8 | 56.6 | 65.2 | 53.6 | 61.0 | 59.0 | 44.8 | 53.9 | 54.0 | 45.6 | 57.4 | 57.9 | 51.8 | 67.3 | 55.8 | | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 |
| JF938079 | BitCVZS/China/2011YN-BitCV-2 | 57.4 | 57.0 | 59.0 | 56.7 | 58.5 | 57.3 | 56.4 | 57.9 | 54.6 | 54.9 | 43.2 | 59.7 | 59.3 | 47.6 | 56.3 | 61.5 | 54.4 | 55.8 | 52.7 | 58.0 | | 0.013 | 0.013 | 0.012 | 0.013 | 0.013 | 0.013 | 0.013 | 0.012 | 0.012 | 0.013 | 0.013 | 0.011 | |
| KJ641715 | BitCVBtRp-CV-52/GD2012 | 54.6 | 54.3 | 54.2 | 55.9 | 53.7 | 56.9 | 63.4 | 54.0 | 60.0 | 56.7 | 45.9 | 54.3 | 55.1 | 46.7 | 56.2 | 56.1 | 54.1 | 93.7 | 55.0 | 67.2 | 55.3 | | 0.013 | 0.014 | 0.012 | 0.013 | 0.013 | 0.013 | 0.012 | 0.014 | 0.012 | 0.013 | | |
| NC_021206 | BitCVXOR7 | 38.1 | 40.2 | 37.2 | 36.1 | 38.2 | 38.7 | 38.0 | 36.7 | 37.9 | 38.8 | 36.6 | 37.3 | 37.7 | 36.9 | 37.3 | 37.2 | 39.6 | 38.1 | 35.4 | 38.9 | 38.4 | 37.4 | | 0.013 | 0.013 | 0.014 | 0.012 | 0.013 | 0.013 | 0.014 | 0.012 | 0.012 | 0.012 | |
| NC_001792 | PorcineCV1 | 40.8 | 40.5 | 39.0 | 38.6 | 40.9 | 40.7 | 38.1 | 39.9 | 37.4 | 39.1 | 37.7 | 39.6 | 38.9 | 36.7 | 38.3 | 37.9 | 39.1 | 37.8 | 36.9 | 39.3 | 39.0 | 37.6 | | 66.1 | | 0.012 | 0.014 | 0.013 | 0.012 | 0.013 | 0.013 | 0.012 | 0.012 | |
| NC_002361 | ColumbidCV | 39.2 | 41.3 | 38.5 | 37.5 | 38.0 | 40.1 | 38.3 | 38.7 | 37.4 | 39.2 | 37.0 | 37.8 | 39.0 | 36.2 | 39.7 | 39.4 | 38.7 | 39.0 | 39.2 | 37.5 | 39.7 | 39.0 | | 44.1 | 43.6 | | 0.013 | 0.013 | 0.013 | 0.012 | 0.012 | 0.012 | 0.012 | |
| NC_003410 | CanaryCV | 38.8 | 40.6 | 38.0 | 38.7 | 38.9 | 39.0 | 38.2 | 39.1 | 36.5 | 38.1 | 36.3 | 38.4 | 36.5 | 36.3 | 39.3 | 38.1 | 39.2 | 39.0 | 38.1 | 39.2 | 39.0 | 38.7 | | 43.9 | 43.7 | 59.3 | | 0.012 | 0.014 | 0.013 | 0.013 | 0.012 | 0.012 | |
| NC_008522 | FinchCV | 38.4 | 38.6 | 38.6 | 38.8 | 39.5 | 38.8 | 38.2 | 39.3 | 36.2 | 38.8 | 35.8 | 38.3 | 37.1 | 35.8 | 38.4 | 37.8 | 38.6 | 38.8 | 38.3 | 39.2 | 38.6 | 39.4 | | 45.0 | 45.4 | 60.5 | 66.3 | | 0.013 | 0.013 | 0.013 | 0.013 | 0.011 | |
| NC_001944 | Beak & feather disease virus | 37.7 | 38.5 | 38.8 | 37.7 | 38.3 | 39.6 | 38.3 | 38.9 | 36.9 | 39.2 | 35.0 | 37.9 | 37.1 | 35.3 | 38.0 | 37.0 | 39.3 | 41.4 | 39.5 | 39.7 | 40.9 | 41.3 | | 44.3 | 42.8 | 59.8 | 54.9 | 56.1 | | 0.013 | 0.013 | 0.013 | 0.013 | |
| JX863737 | BitCVXOR | 41.6 | 41.3 | 39.7 | 40.9 | 40.5 | 41.8 | 41.2 | 40.3 | 39.9 | 42.7 | 38.4 | 41.6 | 41.2 | 38.7 | 41.0 | 38.9 | 40.2 | 41.4 | 42.0 | 41.0 | 41.4 | 40.9 | | 42.1 | 44.3 | 41.7 | 42.6 | 42.5 | 42.3 | | 0.013 | 0.012 | 0.013 | |
| JQ814849 | BitCVRh.ferrumequinumCV1 | 39.6 | 40.0 | 38.0 | 37.6 | 38.7 | 40.7 | 40.3 | 39.2 | 38.5 | 40.8 | 36.9 | 38.1 | 37.9 | 34.8 | 39.0 | 39.0 | 37.9 | 40.7 | 39.0 | 40.2 | 40.8 | 40.4 | | 41.3 | 43.2 | 41.3 | 42.6 | 41.0 | 43.2 | 44.3 | | 0.011 | 0.012 | |
| JF938078 | BitCVZS/China/2011YN-BitCV-1 | 36.4 | 35.9 | 35.2 | 33.4 | 35.8 | 36.7 | 35.5 | 35.1 | 35.4 | 39.1 | 34.6 | 35.8 | 35.3 | 35.5 | 35.7 | 34.8 | 32.0 | 34.4 | 36.3 | 34.6 | 34.7 | 34.8 | | 33.6 | 32.9 | 33.3 | 33.1 | 32.6 | 32.3 | 34.8 | 32.9 | | 0.012 | |
| KM382272 | BitCVPOA/2012/IV | 34.7 | 32.6 | 32.9 | 35.3 | 35.4 | 35.6 | 32.6 | 32.7 | 34.3 | 32.8 | 32.7 | 32.3 | 32.3 | 33.4 | 34.1 | 32.3 | 32.9 | 32.9 | 33.1 | 32.7 | 35.1 | 33.4 | | 29.2 | 29.1 | 29.9 | 29.6 | 29.1 | 29.2 | 31.0 | 31.8 | 29.4 | | |