1	Link Density	Number of edges divided by the number of node pairs
2	Average Node Degree	Average degree for all the nodes in the graph
3	Mean Edge Length	Mean length of all edges in the graph
4	Max. Edge Length	Longest edge in the graph
5	Mean Closeness of *A*	Average inverse sum of distances from each node to all other nodes
6	Mean Closeness of *W*	Average inverse sum of distances from each node to all other nodes
7	Max. Closeness of *A*	Maximal inverse sum of distances from each node to all other nodes
8	Max. Closeness of *W*	Maximal inverse sum of distances from each node to all other nodes
9	Min. Closeness of *A*	Minimal inverse sum of distances from each node to all other nodes
10	Min. Closeness of *W*	Minimal inverse sum of distances from each node to all other nodes
11	Mean Node Betweenness of *W*	Average number of shortest paths going through each node
12	Max. Node Betweenness of *W*	Maximal number of shortest paths going through a node
13	Mean EigenCentrality of *A*	Average of eigenvector components for largest eigenvalue
14	Mean EigenCentrality of *W*	Average of eigenvector components for largest eigenvalue
15	Max. EigenCentrality of *A*	Largest eigenvector component for largest eigenvalue
16	Max. EigenCentrality of *W*	Largest eigenvector component for largest eigenvalue
17	Min. EigenCentrality of *A*	Smallest eigenvector component for largest eigenvalue
18	Min. EigenCentrality of *W*	Smallest eigenvector component for largest eigenvalue
19	S-Metric	Summed products of nodal degrees across all edges
20	Diameter of *A*	Maximum shortest path across all node pairs for A
21	Diameter of *W*	Maximum shortest path across all node pairs for W
22	Radius of *A*	The minimum vertex eccentricity
23	Radius of *W*	The minimum vertex eccentricity
24	Mean Path Length of *A*	The average shortest path
25	Mean Path Length of *W*	The average shortest path
26	Mean Vertex Eccentricity of *A*	Average maximal distance of each node to any other node
27	Mean Vertex Eccentricity of *W*	Average maximal distance of each node to any other node
28	Max. Vertex Eccentricity of *A*	Maximal distance of a node to any other node
29	Max. Vertex Eccentricity of *W*	Maximal distance of a node to any other node
30	Min. Vertex Eccentricity of *A*	Minimal distance of a node to any other node
31	Min. Vertex Eccentricity of *W*	Minimal distance of a node to any other node
32	Ending Nodes Density	Number of ending nodes over total number of nodes
33	Volume	Number of voxels that constitute the volume
34	Spreadness	Ratio between volume of convex hull and structure volume
35	Maximal Bounding Box Length	Largest dimension of bounding box enclosing a structure
36	2nd Largest Bounding Box Length	2nd largest dimension of bounding box enclosing a structure
37	3rd Largest Bounding Box Length	3rd largest dimension of bounding box enclosing a structure
38	Ratio of 1^{st} and 2^{nd} Lengths	Measure for elongation
39	Ratio of $1^{st}/(2^{nd} + 3^{rd})$ Lengths	Measure for eccentricity
40	Ratio of $2^{nd}/3^{rd}$	Measure for roundness
41	Inverse Edge Density	Volume in voxels divided by the number of existing edges
42	Mean Tortuosity	Average curvature of projections (length of edge/distance of nodes)
43	Max. Tortuosity	Maximal curvature of projections (length of edge/distance of nodes)
44	Min. Tortuosity	Minimal curvature of projections (length of edge/distance of nodes)
45	Polarity	Average direction of the projections emerging from the central node
46	Normalized Polarity	Polarity normalized by max. distance between end and central nodes
47	Mean of Centroid Radii	Average distance of centroid to structure border
48	Variance of Centroid Radii	Variance of centroid distances to structure border
49	Variance norm. Centroid Radii	Variance of normalized centroid distances to structure border
50	Sphericity	Ratio between mean and variance of Mean Centroid Radius
51	Mean of Radii of all Nodes	Average distance from each node to border for all nodes
52	Max. Mean Radii of all Nodes	Largest distance from a node to the border
53	Min. Mean Radii of all Nodes	Smallest distance from a node to the border
54	Mean Var. of Radii of all Nodes	Average variance of Centrality
55	Max. Variance of Radii of all Nodes	Largest variance of Centrality
56	Min. Variance of Radii of all Nodes	Smallest variance of Centrality

57	Mean norm. Var. of all Nodes Radii	Average of normalized variance of Centrality
58	Max. norm. Var. of all Nodes Radii	Largest normalized variance of Centrality
59	Min. norm. Var. of all Nodes Radii	Smallest normalized variance of Centrality
60	Node density	Number of nodes divided by total volume
61	Edge density	Number of edges divided by total volume
62	Edge length density	Sum of the length of all edges divided by total volume

Supplementary Table 1: List of morphology features used for cell classification. White numbering corresponds to graph-based, orange to purely geometrical and blue to combined features. Most graph-based features are calculated based on the corresponding adjacency matrix A and weight matrix W (Methods).