**Average Diameter Holes**: Average of sum of diameter of a circle with the same area as the hole (shown by red arrow).  Computed as sqrt(4\*Area/pi). Let’s say area of circle is x pixels. Then radius r is sqrt(4\*x/pi). It is the average of all measurable holes in CV region. Regions under consideration have area greater than 35 pixels.

**Average Area Holes**: Average of area over all holes above 35 pixels in CV region.

**Total Area Hole**: Sum of area of all the holes in CV region above 35 pixels.

**Count Holes**: Number of holes, above certain threshold.

*Note: all the parameters above are computed for holes which are more than 35 pixels.*

**Total Area CV**: Number of pixels in CV (white color pixels).

**Orientation CV**: The angle (in degrees ranging from 0 to 180 degrees) between the x-axis and the major axis of the ellipse that has the same second-moments as the region.

**Diameter CV:** Diameter of a circle with the same area as the CV. If we try to fit a circle, which has same area as pixels count. By putting in formula sqrt(4\*Area/pi) we can get the diameter.

**Perimeter CV:** The distance around the boundary of the CV.   Find the boundary of the CV.  Find the distance between the each adjoining pair of pixels around the border of the region.



**Solidity CV:** Scalar specifying the proportion of the pixels in the convex hull that are also in the region. Computed as (TotalAreaCV/ConvexAreaCV). Convex area is the smallest convex region enclosing CV. Convex area is shown in blue.

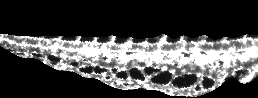






Images and corresponding convex hulls

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Image | AverageDiameterHoles | AverageAreaHoles | TotalAreaHoles | CountHoles | TotalAreaCV | OrientationCV | EquivDiameterCV | PerimeterCV | SolidityCVs |
| 20uM Cymoxanil x4-3 | 11.43875086 | 109.625877 | 877 | 8 | 9681 | 86.4740798 | 116.151824 | 681.2274888 | 0.862304688 |
| 8uM Esbiol x4-3 | 0 | 0 | 0 | 0 | 9315 | 166.7675 | 108.8520427 | 629.7300141 | 0.548250265 |



8uM Esbiol x4-3

20uM Cymoxanil x4-3