HomogenMSI

calculateDHI

This function calculates the drug homogeneity index for a given MSI data, using the following formula:

$$DHI = \frac{\sum_{i=1}^{Ng}\sum_{j=Nu}^{Nz} j.P(i,j)}{\sum_{i=1}^{Ng}\sum_{j=Nu}^{Nz} P(i,j)} \over TumorArea$$

Here, P is the gray level size-zone matrix(GLSZM) Ng is number of gray levels/rows in GLSZM. Nz is number of size zones/columns in GLSZM. $P(i,j)$ is the frequency for particular gray level i occupided size zone j. j is the absolute size zone value. $TumorArea$ is the size of the tumor tissue.

Derive DHI value from synthetic imaging datasets

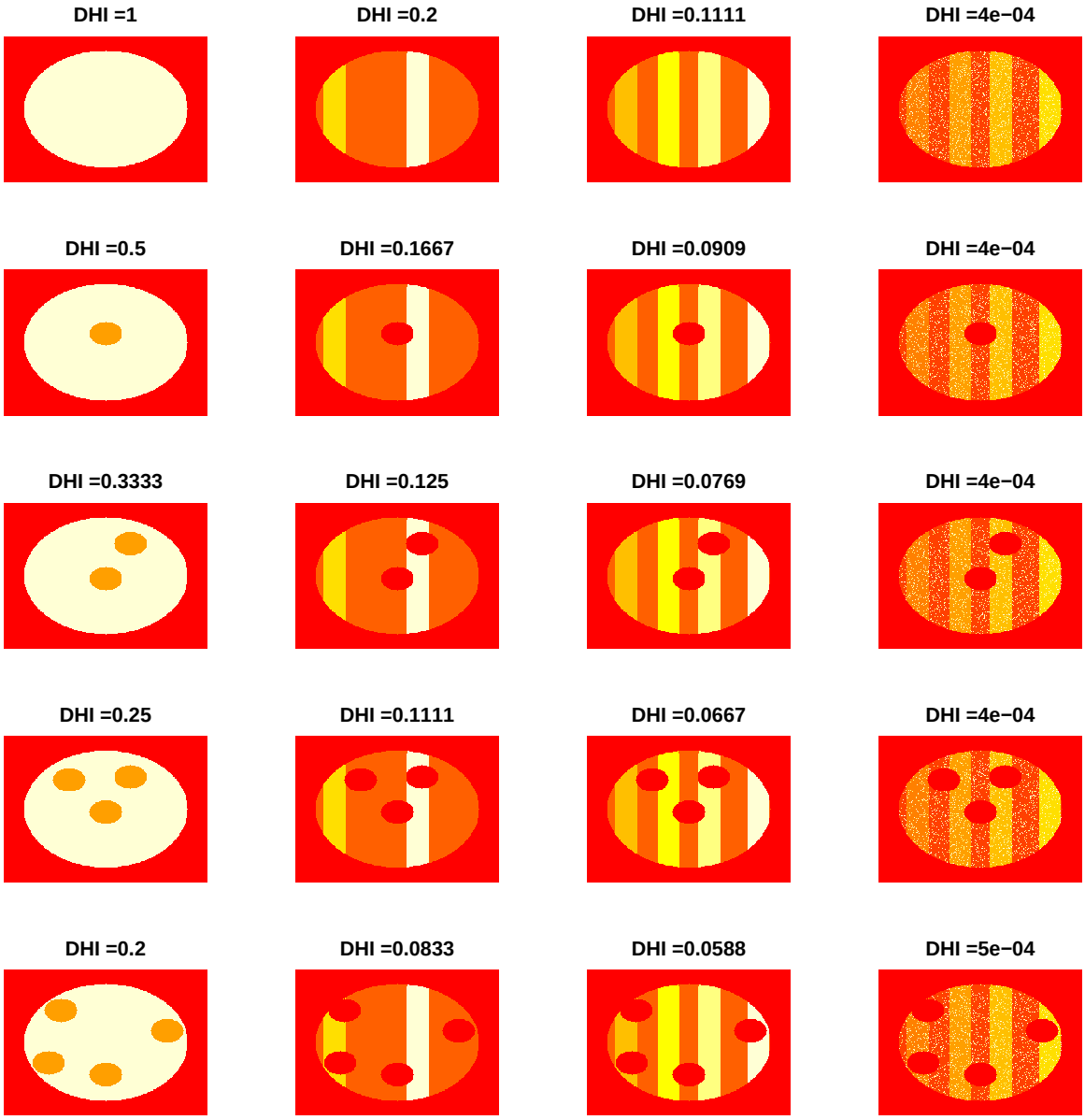
```
library(HomogenMSI)
data("DHIimages")
drugImg = DHIimages[[20]]
maskImg = DHIimages[[1]]
maskImg[maskImg !=0] =1
print(CalculateDHI(drugImg,maskImg))
```

```
## [1] 0.0004664179
```

```
print(CalculateDHI(drugImg,maskImg,QuantLevel=0,Nu=5))
```

```
## [1] 0.0339908
```

In similar way, DHI can be calculated for the rest of the images.



Note: our DHI formula will not work for image 1, as only single gray level present.