Testing

In [ ]:
```
model.load_weights('./model.h5')

test_preds = model.predict(x_test)
print(test_preds.shape)
print(type(test_preds))
```

Evaluating Individual Dice-Co efficient

Metrics for individual evaluation

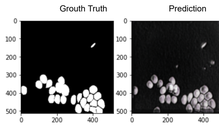
In [ ]:
```
def dice_coef2(a, b):
        #  hi = K.hi
        #  hi = hi / 255

        #    hi = tf.convert_to_tensor(hi, dtype=None)
        #    pred = tf.convert_to_tensor(test_preds, dtype=None)
    hi = a/255
    pred = b
    hi = K.flatten(hi)
    pred = K.flatten(pred)
    upper_part = 2 * K.sum((hi * pred))
    lower_part = K.sum(hi + pred)
    dice = upper_part / lower_part
    return dice

def jaccard_index2(a, b):
    hi = a/255
    pred = b
    hi = K.flatten(hi)
    pred = K.flatten(pred)
    numerator = K.sum(hi * pred)
    denominator = K.sum((hi + pred) - (hi * pred))
    iou = numerator / denominator
    return iou
```

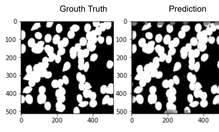
In [ ]:
```
print(y_test[0].dtype)
print(test_preds[0].dtype)
i = y_test[0]
j = test_preds[0]
#i = np.asarray(i).astype(dtype=np.float32)
result = dice_coef2(i,j)
#print(tf.get_static_value(result))
print('Dice Co-efficient: ', result)
result2 = jaccard_index2(i,j)
print('Jaccard-index: ', result2)
x = np.zeros((2, row, columns, 3))
x[0] = i
x[1] = j
imshow_collection(x)
```

- Dice Co-efficient: 0.5077453
- Jaccard-index: 0.3402538



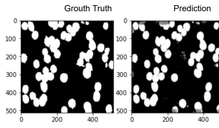
In [ ]:
```
print(y_test[1].dtype)
print(test_preds[1].dtype)
i = y_test[1]
j = test_preds[1]
#i = np.asarray(i).astype(dtype=np.float32)
result = dice_coef2(i,j)
#print(tf.get_static_value(result))
print('Dice Co-efficient: ', result)
result2 = jaccard_index2(i,j)
print('Jaccard-index: ', result2)
x = np.zeros((2, row, columns, 3))
x[0] = i
x[1] = j
imshow_collection(x)
```

- Dice Co-efficient: 0.897038
- Jaccard-index: 0.8132989



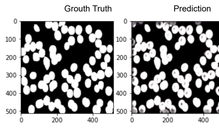
In [ ]:
```
print(y_test[2].dtype)
print(test_preds[2].dtype)
i = y_test[2]
j = test_preds[2]
#i = np.asarray(i).astype(dtype=np.float32)
result = dice_coef2(i,j)
#print(tf.get_static_value(result))
print('Dice Co-efficient: ', result)
result2 = jaccard_index2(i,j)
print('Jaccard-index: ', result2)
x = np.zeros((2, row, columns, 3))
x[0] = i
x[1] = j
imshow_collection(x)
```

- Dice Co-efficient: 0.90679324
- Jaccard-index: 0.82948023



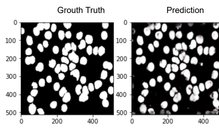
In [ ]:
```
print(y_test[3].dtype)
print(test_preds[3].dtype)
i = y_test[3]
j = test_preds[3]
#i = np.asarray(i).astype(dtype=np.float32)
result = dice_coef2(i,j)
#print(tf.get_static_value(result))
print('Dice Co-efficient: ', result)
result2 = jaccard_index2(i,j)
print('Jaccard-index: ', result2)
x = np.zeros((2, row, columns, 3))
x[0] = i
x[1] = j
imshow_collection(x)
```

- Dice Co-efficient: 0.88501376
- Jaccard-index: 0.79374397



In [ ]:
```
print(y_test[4].dtype)
print(test_preds[4].dtype)
i = y_test[4]
j = test_preds[4]
#i = np.asarray(i).astype(dtype=np.float32)
result = dice_coef2(i,j)
#print(tf.get_static_value(result))
print('Dice Co-efficient: ', result)
result2 = jaccard_index2(i,j)
print('Jaccard-index: ', result2)
x = np.zeros((2, row, columns, 3))
x[0] = i
x[1] = j
imshow_collection(x)
```

- Dice Co-efficient: 0.87101895
- Jaccard-index: 0.7715089



Average Test Dice Co-efficient, Jaccard index

In [ ]:
```
#dice_list = np.array(len(test_preds))
#jaccard_list = np.array(len(test_preds))
avg_dice = 0
avg_jaccard = 0
for x in range(len(test_preds)):
    i = y_test[x]
    j = test_preds[x]
    avg_dice = avg_dice + tf.get_static_value(dice_coef2(i,j))
    avg_jaccard = avg_jaccard + tf.get_static_value(jaccard_index2(i,j))

#print(dice_list.dtype)
#print(type(dice_list))
#print(dice_list)
#print(jaccard_list)
#avg_dice = tf.get_static_value(K.sum(dice_list)) / tf.get_static_value(tf.size(dice_list))
#avg_jaccard = tf.get_static_value(K.sum(jaccard_list)) / tf.get_static_value(tf.size(jaccard_list))
print('Average Test Dice co-efficent: ', avg_dice/len(test_preds))
print('Average Test Jaccrad Index: ', avg_jaccard/len(test_preds))
```

- Average Test Dice co-efficent: 0.8135218501091004
- Average Test Jaccrad Index: 0.7096571505069733

Highest & Lowest

In [ ]:
```
print('Lowest training loss: ', min(history.history['loss']))
print('Lowest validation loss: ', min(history.history['val_loss']))
print('Highest training dice coefficient: ', max(history.history['dice_coef']))
print('Highest validation dice coefficient: ', max(history.history['val_dice_coef']))
print('Highest training jaccrad index: ', max(history.history['jaccard_index']))
print('Highest validation jaccard index: ', max(history.history['val_jaccard_index']))
```

- Lowest training loss: 0.11458513140678406
- Lowest validation loss: 0.15114641189575195
- Highest training dice coefficient: 0.898185729980468
- Highest validation dice coefficient: 0.9006613492965698
- Highest training jaccrad index: 0.8164438605308533
- Highest validation jaccard index: 0.81979900598526