# Installation and Software Usage Guide

Pre-installation:

install XWin Server (for Windows) http://x.cygwin.com/devel/server/

Xterm for Linux and Mac OS http://invisible-island.net/xterm/

or any other applications that support X11 forwarding.

Connecting to Cluster:

SSH -X useraccount@eagle.bmi.stonybrook.edu

then

SSH -X nfs001

Download and Install on cluster:

1. eclipse-jee-luna-SR1-linux-gtk-x86_64.tar.gz (Eclipse JEE is required to run with Apache) from http://www.eclipse.org/downloads/download.php?file=/technology/epp/downloads/release/luna/SR1/eclipse-jee-luna-SR1-linux-gtk-x86_64.tar.gz
2. Apache 8 from http://supergsego.com/apache/tomcat/tomcat-8/v8.0.15/bin/apache-tomcat-8.0.15.tar.gz
3. Firefox Nightly from https://ftp.mozilla.org/pub/mozilla.org/firefox/nightly/latest-trunk/firefox-37.0a1.en-US.linux-x86_64.tar.bz2

for tar.gz use:  tar xzf eclipse-jee-luna-SR1-linux-gtk-x86_64.tar.gz

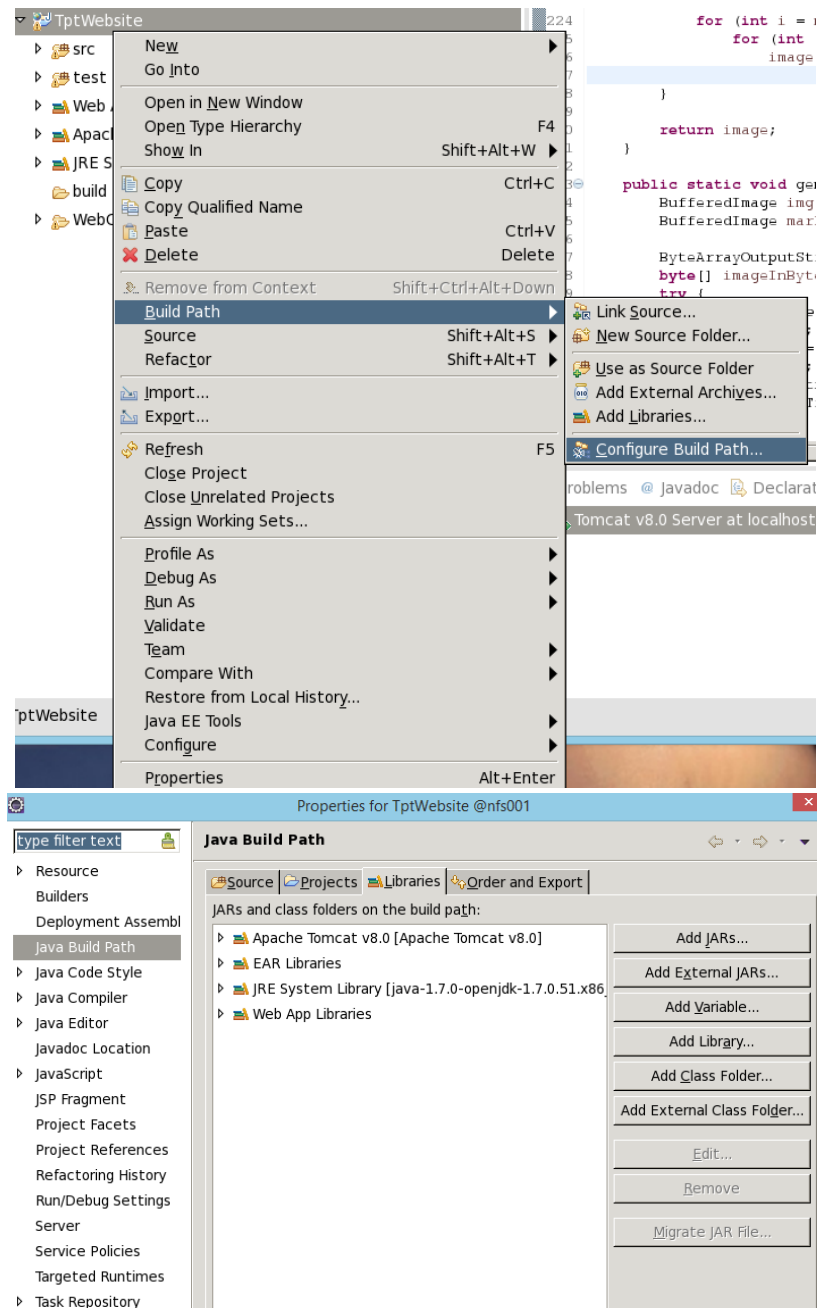      and : tar xzf apache-tomcat-8.0.15.tar.gz

for tar.be2 use: tar xjf firefox-37.0a1.en-US.linux-x86_64.tar.bz2
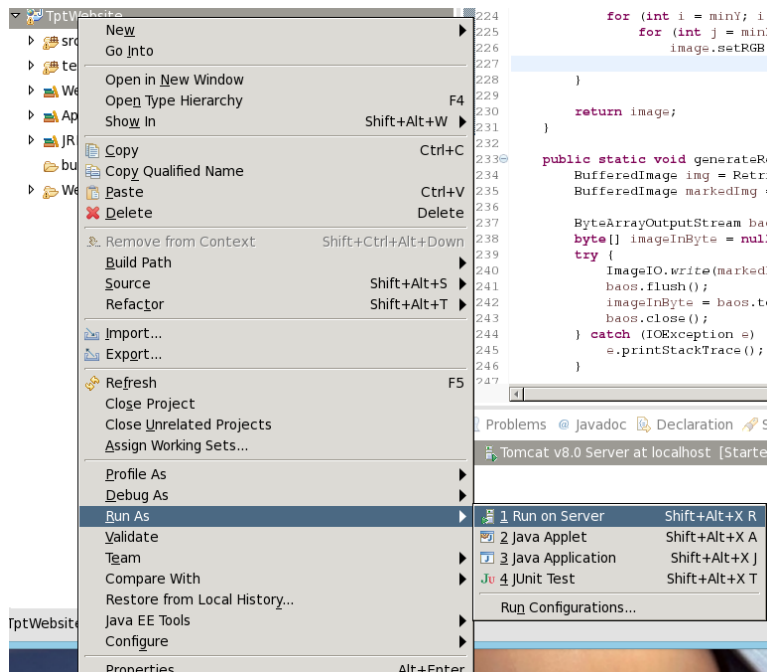
Launch and configuration:

go to Eclipse directory then ./eclipse & to launch eclipse jee

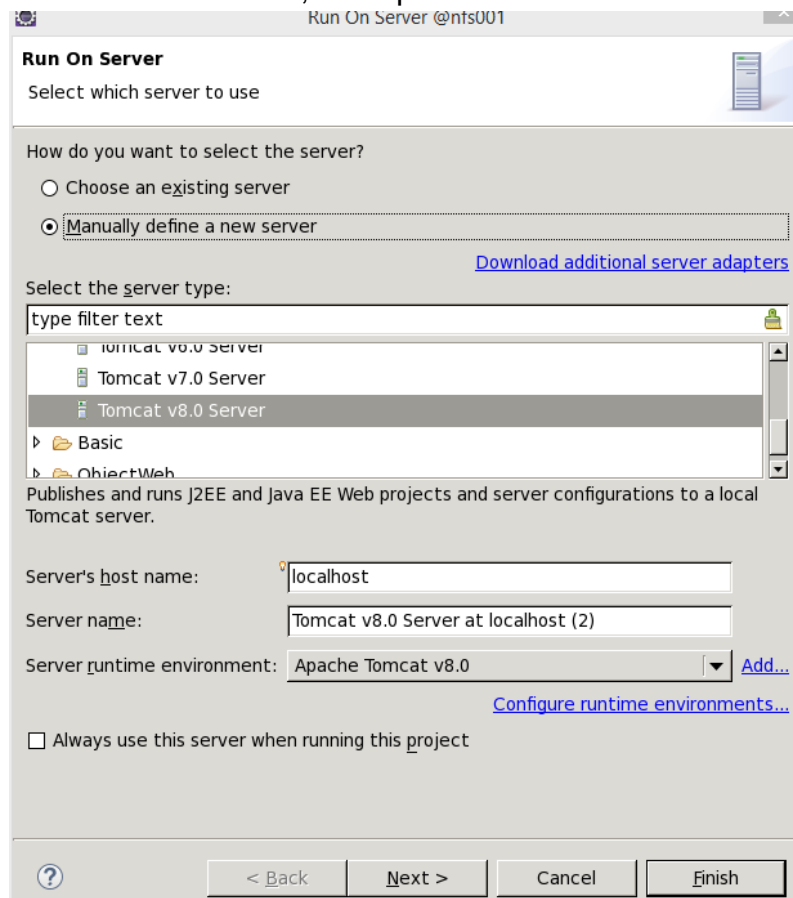and then go to FireFox directory ./firefox & to launch firefox

In Eclipse import the project (TptWebsite). There may be library version unmatch errors. To solve this, got to Configure Build Path, remove unmatched JRE System Library, use the default JRE library used by Eclipse.

TptWebsite

- src
- test
- Web
- Apach
- JRE S
  build
- WebC

New
Go Into

Open in New Window
Open Type Hierarchy                          F4
Show In                              Shift+Alt+W

Copy                                         Ctrl+C
Copy Qualified Name
Paste                                        Ctrl+V
Delete                                       Delete

Remove from Context          Shift+Ctrl+Alt+Down
Build Path
Source                               Shift+Alt+S
Refactor                             Shift+Alt+T

Import...
Export...

Refresh                                      F5
Close Project
Close Unrelated Projects
Assign Working Sets...

Profile As
Debug As
Run As
Validate
Team
Compare With
Restore from Local History...
Java EE Tools
Configure
Properties                               Alt+Enter

Link Source...
New Source Folder...
Use as Source Folder
Add External Archives...
Add Libraries...
Configure Build Path...

roblems   @ Javadoc   Declarat

Tomcat v8.0 Server at localhost

```
for (int i = r
    for (int
        image

        }

    return image;
}

public static void ge
    BufferedImage img
    BufferedImage mar

    ByteArrayOutputSt.
    byte[] imageInByte
    try {
```

TptWebsite

Properties for TptWebsite @nfs001

type filter text

- Resource
  Builders
  Deployment Assembl
  Java Build Path
- Java Code Style
- Java Compiler
- Java Editor
  Javadoc Location
- JavaScript
  JSP Fragment
  Project Facets
  Project References
  Refactoring History
  Run/Debug Settings
  Server
  Service Policies
  Targeted Runtimes
- Task Repository

**Java Build Path**

Source | Projects | Libraries | Order and Export

JARs and class folders on the build path:

- Apache Tomcat v8.0 [Apache Tomcat v8.0]
- EAR Libraries
- JRE System Library [java-1.7.0-openjdk-1.7.0.51.x86
- Web App Libraries

Add JARs...
Add External JARs...
Add Variable...
Add Library...
Add Class Folder...
Add External Class Folder...
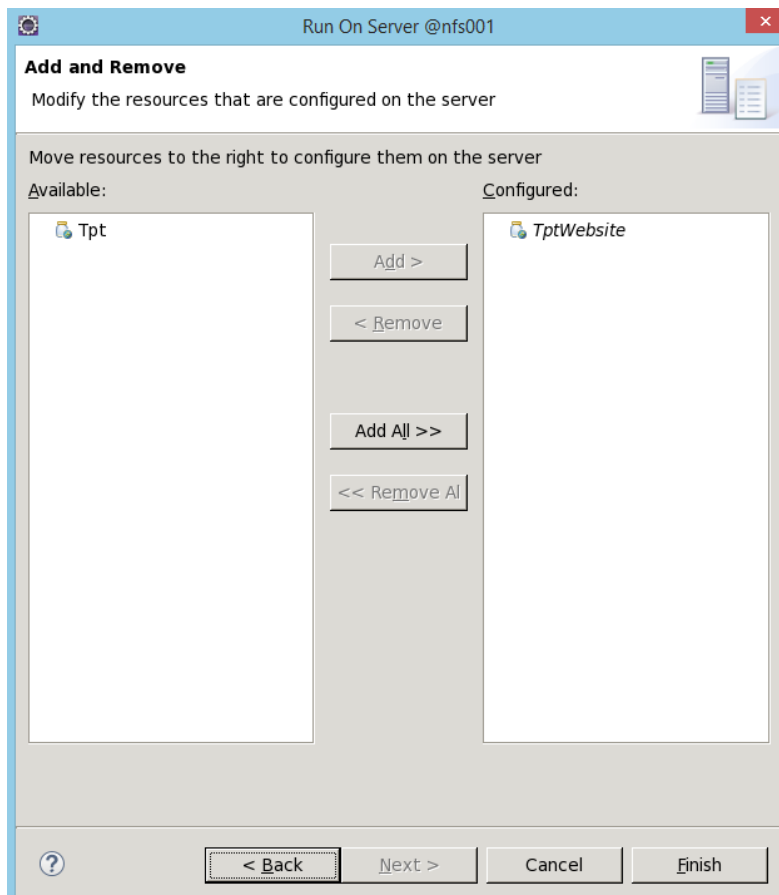Edit...
Remove
Migrate JAR File...
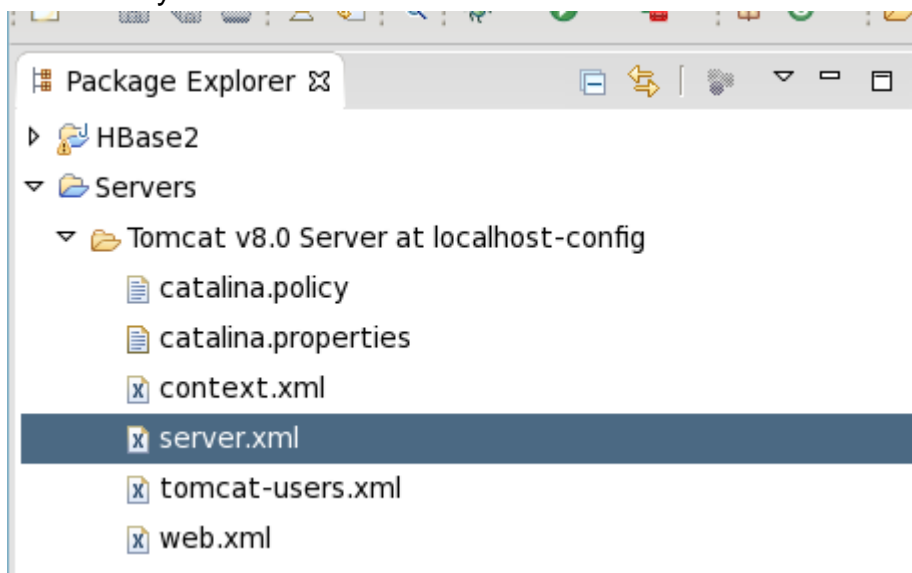
Then run as-> Run on Server

For the first time use, set up new Tomcat V8.0 Sever
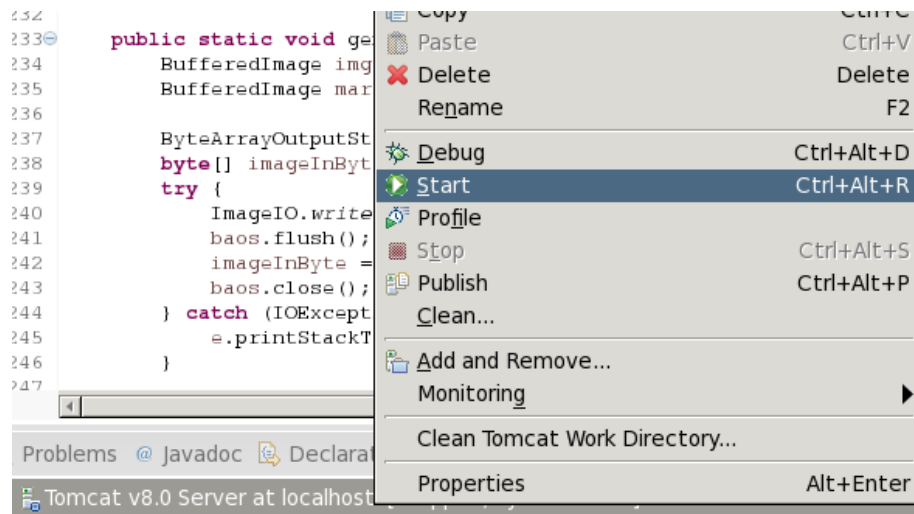


Move TptWebsite to Configured.

Also modify server.xml under Servers->Tomcat v8.0 Server at localhost-config



Change port. Default is 8080 (We use 8888)  If there are any other conflicts, change ports to any unused port.

```
-->
<Connector connectionTimeout="20000" port="8888" protocol="HTTP/1.1" redirectPort="8443"/>
<!-- A "Connector" using the shared thread pool-->
```

Then start Sever

```
232
233⊖    public static void ge
234        BufferedImage img
235        BufferedImage mar
236
237        ByteArrayOutputSt
238        byte[] imageInByt
239        try {
240            ImageIO.write
241            baos.flush();
242            imageInByte =
243            baos.close();
244        } catch (IOExcept
245            e.printStackT
246        }
247
```

| Copy | Ctrl+C |
| Paste | Ctrl+V |
| Delete | Delete |
| Rename | F2 |
| Debug | Ctrl+Alt+D |
| Start | Ctrl+Alt+R |
| Profile | |
| Stop | Ctrl+Alt+S |
| Publish | Ctrl+Alt+P |
| Clean... | |
| Add and Remove... | |
| Monitoring | ▶ |
| Clean Tomcat Work Directory... | |
| Properties | Alt+Enter |

Problems  @ Javadoc  Declarat

Tomcat v8.0 Server at localhost

In FireFox, go to http://localhost:port_number/TptWebsite/
(http://localhost:8888/TptWebsite/ in our case)

Application
For Basic:
User can select search condition on Project, TSS, Participant, Sample and Vial

Project 4                                    About    Services    Contact

Please select search condition

Project
TCGA

TSS
06

Paticipant
0208

Sample
01

Vial
Z

Use can also add features to search. Add Condition, then select specific feature and operator, type value.  There are range intervals for each feature.

## Feature

Add Condition

FSD1 ▼ | <= ▼
0.1
FSD1 Range is [ 0.010303, 0.852794 ]

SEARCH    BACK TO HOMEPAGE

If there are more conditions.  Keep adding conditions.

## Feature

Add Condition

FSD1 ▼ | > ▼
0.5
FSD1 Range is [ 0.010303, 0.852794 ]

FSD2 ▼ | > ▼
0.2
FSD2 Range is [ 0.011285, 0.460679 ]

FSD3 ▼ | <= ▼
0.2
FSD3 Range is [ 0.002186, 0.337878 ]

After user clicks SEARCH, application will return results in popup window.
Result page will contain:
1.  Show counts of matched records and slides.

Project 4     About   Services   Contact

**Search Result**

Please select a feature to view statistic info:

**Statistic info**

**Find 24 records in 13 slides.**

View statistic info

Please select slide to view:

TCGA-06-0216-01Z-00-DX3:004096.008192

View the slide

2. Select any feature to view histogram.



Project 4     About   Services   Contact

**Search Result**

Please select a feature to view statistic info:

FSD1

**Statistic info**

**Find 24 records in 13 slides.**

Area
Perimeter
Eccentricity
Circularity
MajorAxisLength
MinorAxisLength
Extent
Solidity
FSD1
FSD2
FSD3
FSD4
FSD5
FSD6
HematoxlyinMeanIntensity
HematoxlyinMeanMedianDifferenceIntensity
HematoxlyinMaxIntensity
HematoxlyinMinIntensity
HematoxlyinStdIntensity
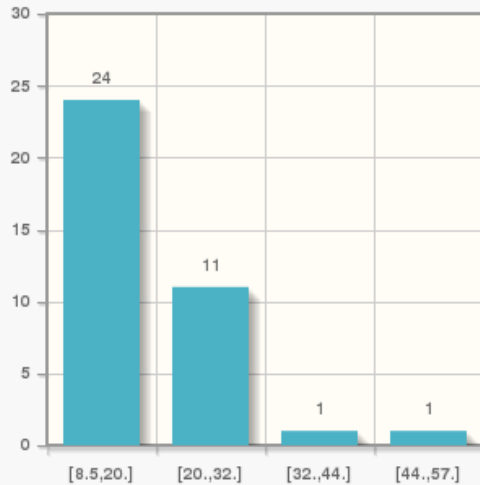
Please select slide to view:

TCGA-06-0216-01Z-00-DX3:000000.012288

View the slide

**Please select a feature to view statistic info:**

MajorAxisLength

View statistic info



3. Select any result slide. It will show preview of the image (200*200 pixels) along with detail information of the cells which match the query in the specific slide.



Project 4                                                                 About    Services    Contact

**Please select slide to view:**

TCGA-06-0216-01Z-00-DX3:032768.008192

View the slide

TCGA-06-0216-01Z-00-DX3:004096.008192
TCGA-06-0216-01Z-00-DX3:012288.028672
TCGA-06-0216-01Z-00-DX3:028672.024576
TCGA-06-0216-01Z-00-DX3:028672.008192
TCGA-06-0216-01Z-00-DX3:008192.004096
TCGA-06-0216-01Z-00-DX3:024576.012288
TCGA-06-0216-01Z-00-DX3:032768.024576
TCGA-06-0216-01Z-00-DX3:016384.008192
TCGA-06-0216-01Z-00-DX3:004096.012288
TCGA-06-0216-01Z-00-DX3:008192.008192
TCGA-06-0216-01Z-00-DX3:016384.028672
TCGA-06-0216-01Z-00-DX3:000000.012288
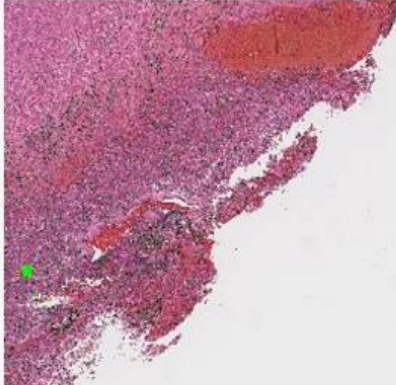TCGA-06-0216-01Z-00-DX3:032768.008192

**Cell in this slide:**

| Number | Details |
| --- | --- |
| 1 | Area=24.000000;Center=00;Circularity=0.843052; CytoplasmEnergy=0.008294; CytoplasmEnergyGradMag=0.020549; CytoplasmEntropy=7.087340; CytoplasmEntropyGradMag=5.893606; CytoplasmKurtosis=1.965312; CytoplasmKurtosisGradMag=6.217280; CytoplasmMaxIntensity=255.000000; CytoplasmMeanCanny=0.221289; CytoplasmMeanGradMag=28.995674; CytoplasmMeanIntensity=153.000810; CytoplasmMeanMedianDifferenceIntensity=8.374391; CytoplasmMinIntensity=45.930630; CytoplasmSkewness=0.233608; CytoplasmSkewnessGradMag=1.598040; |

## Project 4

**Please select slide to view:**

TCGA-06-0216-01Z-00-DX3:016384.008192

[ View the slide ]

**Slide image:**



**Cell in this slide:**

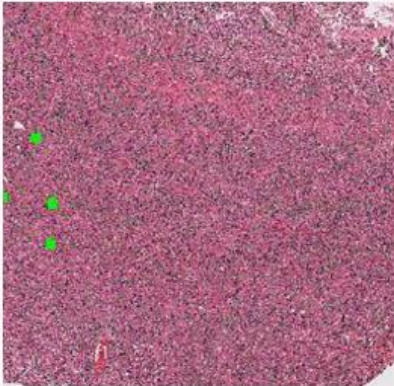| Number | Details |
|--------|---------|
| 1 | Area=101.000000;Center=00;Circularity=0.502322; CytoplasmEnergy=0.013041; CytoplasmEnergyGradMag=0.026912; CytoplasmEntropy=6.667303; CytoplasmEntropyGradMag=5.614083; CytoplasmKurtosis=6.694879; CytoplasmKurtosisGradMag=6.951428; CytoplasmMaxIntensity=255.000000; CytoplasmMeanCanny=0.228319; CytoplasmMeanGradMag=21.428040; CytoplasmMeanIntensity=80.723768; CytoplasmMeanMedianDifferenceIntensity=12.079175; CytoplasmMinIntensity=15.891138; CytoplasmSkewness=1.887855; CytoplasmSkewnessGradMag=2.011627; |

## Project 4

**Please select slide to view:**

TCGA-06-0216-01Z-00-DX3:004096.012288

[ View the slide ]

**Slide image:**



**Cell in this slide:**

| Number | Details |
|--------|---------|
| 1 | Area=27.000000;Center=00;Circularity=0.618956; CytoplasmEnergy=0.016495; CytoplasmEnergyGradMag=0.030682; CytoplasmEntropy=6.139950; CytoplasmEntropyGradMag=5.260883; CytoplasmKurtosis=2.965653; CytoplasmKurtosisGradMag=4.376666; CytoplasmMaxIntensity=156.727509; CytoplasmMeanCanny=0.262009; CytoplasmMeanGradMag=21.109020; CytoplasmMeanIntensity=79.677201; CytoplasmMeanMedianDifferenceIntensity=1.078881; CytoplasmMinIntensity=22.936062; CytoplasmSkewness=0.239667; CytoplasmSkewnessGradMag=0.999400; |

**Project 4**                                          About   Services   Contact

Please select slide to view:

TCGA-06-0216-01Z-00-DX3:000000.012288 ▾          [ View the slide ]

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Slide image:                                           Cell in this slide:

| Number | Details |
|--------|---------|
| 1 | Area=24.000000;Center=00;Circularity=0.843052; CytoplasmEnergy=0.008294; CytoplasmEnergyGradMag=0.020549; CytoplasmEntropy=7.087340; CytoplasmEntropyGradMag=5.893606; CytoplasmKurtosis=1.965312; CytoplasmKurtosisGradMag=6.217280; CytoplasmMaxIntensity=255.000000; CytoplasmMeanCanny=0.221289; CytoplasmMeanGradMag=28.995674; CytoplasmMeanIntensity=153.000810; CytoplasmMeanMedianDifferenceIntensity=8.374391; CytoplasmMinIntensity=45.930630; CytoplasmSkewness=0.233608; CytoplasmSkewnessGradMag=1.598040; |

**Project 4**                                          About   Services   Contact

| | Perimeter=28.688000;Project=TCGA;Sample=01; Solidity=0.690909;TSS=06;Vial=Z;X=3581.1; Y=15644.4; |
|---|---|
| 6 | Area=115.000000;Center=00;Circularity=0.393893; CytoplasmEnergy=0.017078; CytoplasmEnergyGradMag=0.033073; CytoplasmEntropy=6.196777; CytoplasmEntropyGradMag=5.220700; CytoplasmKurtosis=6.278370; CytoplasmKurtosisGradMag=7.688766; CytoplasmMaxIntensity=184.696899; CytoplasmMeanCanny=0.240741; CytoplasmMeanGradMag=16.884085; CytoplasmMeanIntensity=62.908710; CytoplasmMeanMedianDifferenceIntensity=5.599668; CytoplasmMinIntensity=4.881145; CytoplasmSkewness=1.468701; CytoplasmSkewnessGradMag=1.789895; CytoplasmStdGradMag=12.224514; CytoplasmStdIntensity=24.680331; CytoplasmSumCanny=130.000000; Eccentricity=0.962249;Extent=0.357143; FSD1=0.099506;FSD2=0.117249;FSD3=0.159859; FSD4=0.225776;FSD5=0.055435;FSD6=0.038448; HematoxlyinEnergy=0.147524; HematoxlyinEnergyGradMag=0.022155; HematoxlyinEntropy=4.577323; HematoxlyinEntropyGradMag=5.805066; |

4.  If user want to view original size slide with highlighted cells (4096*4096 pixels), Download is available.  Click Download and Save File.  Downloaded image is in the folder UserHome_Directory/Downloads/