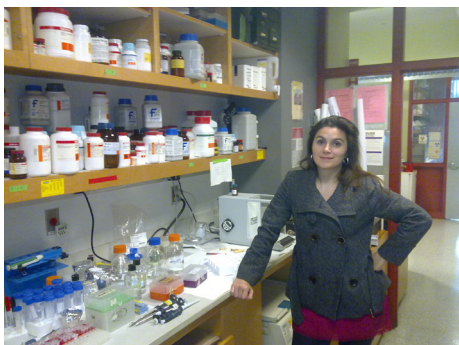




USER HIGHLIGHT: ALEJANDRA LEO-MACIAS

Three way collaboration: New York Medical, NYSBC and City College of New York



Pictured above is Alejandra Leo-Macias in the lab at NYU Medical Center.

Alejandra Leo-Macias, whom we have come to know as Sandra, has an accepted publication in Virology. The article, "Toroidal surface complexes of bacteriophage ϕ 12 are responsible for host-cell attachment," is currently available online (doi:10.1016/j.virol.2011.03.020) and will be available in print in a few short months.

This article represents collaboration between three New York institutions: New York University (NYU), New York Structural Biology Center (NYSBC) and the City College of New York (CCNY). Sandra, a Postdoctoral

Fellow in the Stokes Structural Biology Laboratory part of the Skirball Institute of Biomolecular Medicine at NYU Medical Center, has a fellowship from the Spanish Ministry of Science for doing postdoctoral research focusing on electron microscopy and computational biology. The bacteriophage ϕ 12 samples were prepared in Paul Gottlieb's lab at CCNY and plunge frozen and imaged at NYSBC. The image processing was done using the NYSBC computer cluster and NYU computing resources.

The bacteriophage ϕ 12 is a member of the family Cystoviridae,

Welcome to Ancient Greece!

Introduction of new computer naming scheme and other computer updates

THE WORKSTATIONS AT NYSBC ARE NOW NAMED AFTER GREEK GODS AND HEROES INSTEAD OF (CEM01,CEM02,...). THE DISKS WITHIN EACH WORKSTATION HAVE NAMES RELATED TO THE NAME BY LEGEND. ALIASES WILL STILL EXIST FOR THE OLD DISK NAMES (CEM02DATA,CEM03DATA,...). WE ARE ALSO INSTALLING A NEW SERVER WHICH WILL CENTRALIZE ALL BACKUPS. FORMERLY, BACKUPS WERE DONE ON DUPLICATE DISKS INSIDE EACH WORKSTATION. THIS NEW SYSTEM WILL FREE UP EVEN MORE DISK SPACE, AS THE DISKS FORMERLY USED FOR BACKUP ARE NOW AVAILABLE FOR STORAGE

THE FOLLOWING TABLE LISTS THE NEW NAMES:

COMPUTER [OLDNAME]

DISKS [OLDNAME] Size

PRIAM(KING OF TROY) [CEM02]

HECUBA(WIFE) [CEM02DATA2]	250 GB
HECTOR(SON/HERO) [CEM02DATA]	200 GB
PARIS(SON/CAPTOR) [CEM02BIGDATABACKUP]	1.5 TB
HELEN(CAPTIVE) [CEM02BIGDATA]	1.5 TB

AGAMEMNON(COMMANDER OF GREEKS) [CEM03]

IPHIGENIA(DAUGHTER) [CEM03DATA2]	250 GB
MENELAUS(BROTHER) [CEM03DATA]	200 GB
ACHILLES(HERO) [CEM03BIGDATA]	1.5TB
ODYSSEUS (CREATOR OF TROJAN HORSE) [CEM03BIGDATA_BACKUP]	1.5 TB

MINOTAUR(HALF-MAN HALF-BULL MONSTER) [CEM12]

THESEUS(SLAYER) [CEM12DATA]	700 GB
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ORPHEUS(GOLDEN LYRE MUSICIAN) [CEM15]

EURYDICE(WIFE) [CEM15DATA]	5.2 TB
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CRONUS(TITAN LEADER) [CEM01]

URANUS(ANCESTOR OF) [CEM01BACKUP]	250 GB
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ATHENA(GODDESS OF WISDOM) (CEM100)

DATA --RESERVED FOR LEGINON	2TB
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NAS DRIVE

ARACHNE(MORTAL WEAVER TURNED SPIDER) [DL380]	1.5 TB
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REMINDER: THE ABOVE DISKS ARE BACKED UP NIGHTLY, AND ARE INTENDED TO BE USED FOR PROCESSING DATA. DO NOT USE YOUR HOME DIRECTORY, BECAUSE IT IS NOT BACKED UP.



CONTACT Cryo EM Facility:

New York Structural Biology Center

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SAFETY AND SECURITY

Ms. Rachele Jones is the Security Supervisor here at NYSBC and has worked at this site since 2006. She has been with US Security, the firm that NYSBC contracts with to oversee building related safety and security, since 2005.

Rachele is the first person to greet you when you sign in at NYSBC. Everyone, including NYSBC staff, sign in as a measure to insure that if there is an emergency everyone is accounted for.

In addition to the thankless task of enforcing frequently unpopular safety and security rules; Rachele is also in charge of training all of the other security guards to enforce the same rules. Rachele reacts quickly when resolving problems. She has an eye for details and frequently goes beyond the call of duty. For example she places temperature sensitive samples into the cold room when the addressed scientific staffs are not immediately available.

Next time you arrive at NYSBC, be sure to say "Hello" and give her a big smile. Rachele is a valued member of our team!

ALEJANDRA LEO-MACIAS (CONT)

a unique group of lipid-containing, membrane-enveloped bacteriophages that has been very useful in creating research models for elucidating replication mechanisms of several RNA viruses.

In the accepted work, cryo-electron tomography and sub-tomogram averaging are utilized to determine the shape of some characteristic toroidal protrusions in the surface of this virus. These complexes, whose doughnut-like shape is similar to an o-ring, are found to have six-fold symmetry, composed of six globular domains with a discrete density connecting them to the virus membrane-envelope surface. Furthermore, through experiments with mutants, evidence is provided that they are encoded

by the M segment of their dsRNA genome and that they are primarily responsible for the specificity of the attachment to the host bacteria.

The findings in Leo-Macias et al. may have implications in the study of the evolution of the cystovirus species in regard to their host specificity and future work will focus on the study of host cell binding in different species and strains of cystoviruses such as $\phi 8$ and $\phi 13$.

The editors of the journal have chosen some figures in the work for the journal cover.

WEB BROWSING UPDATE

We have experienced malware virus attacks on a few of our desktop computers and it was a nightmare to deal with. In a drastic measure to prevent similar attacks on sensitive microscope computers with proprietary software we have disabled outside web access on all microscope computers. Internet access to local (intranet) sites, such as the twiki and php logbook, will still work. In order to browse outside websites (i.e. check your email) you will need to bring a laptop and connect to the public network. You can ask Rachele what the current "public" wireless password is or find it posted in room A-14 (break room). We realize that web access is crucial to many users. We have ordered parts necessary to update our wireless hub to boost the signal in each EM suite.

SPECIAL SEMINAR

10 MAY 2011 - 2-3 PM (A-11) - SPECIAL SEMINAR: JAMES CHEN FROM THE DEPARTMENT OF BIOLOGY AT MIT WILL PRESENT HIS WORK TITLED, "TOWARDS HIGH-RESOLUTION, HIGH-THROUGHPUT SINGLE PARTICLE EM"

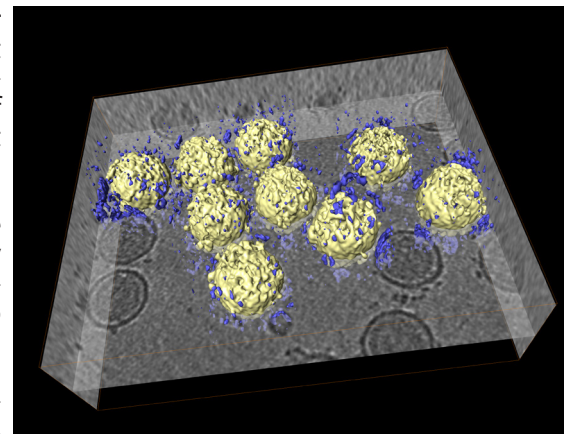
UPCOMING EM JOURNAL CLUBS

EMJC is held in A-11 from 4-6pm every other Thursday. Beer and Pizza are provided.

19 MAY 2011 - PAUL GOTTLIEB OF CCNY WILL PRESENT "THREE-DIMENSIONAL MODEL OF SALMONELLA'S NEEDLE COMPLEX AT SUBNANOMETER RESOLUTION" BY SCHRAIDT ET.AL. (2011) SCIENCE *331(6021)*:1192-1195.

02 JUNE 2011 -IGNACIO GARZÓN OF COLUMBIA WILL PRESENT HIS PAPER ADP_EM: FAST EXHAUSTIVE MULTI-RESOLUTION DOCKING FOR HIGH-THROUGHPUT COVERAGE. (2007) . BIOINFORMATICS. 23(4):427-33

THIS SPRING/SUMMER EM JOURNAL CLUB CONTINUES AS A BI-WEEKLY DISCUSSION OF CURRENT EM RELATED JOURNAL ARTICLES. WE ARE ALWAYS LOOKING FOR PEOPLE TO PRESENT. IF THERE IS A PAPER YOU WOULD LIKE TO PRESENT PLEASE EMAIL CEM@NYSBC.ORG



Pictured above is the 3D volume of $\phi 12$ with surface complexes super imposed on a slice from the tomogram. The virus core is white and the toroidal surface complexes are labeled blue.