Mount Sinai School of Medicine

DENNIS S. CHARNEY, M.D.
Dean

September 21, 2010
Achieving and Maintaining Greatness

Accelerating Science
Advancing Medicine

Quality

Best Doctors in NY
- 147 FPA Doctors in 49 specialties
  Total 394 in 56 specialties (includes voluntaries, affiliates and non-FPA)

US News & World Report Rankings
- Medical School 2010 #18 (#22 in 2009)
  Hospital 2010 - “One of the Best Hospitals in US”
  Top 20 in 7 Specialties (up from 6 in 2009)
  Top 50 in 13 Specialties (up from 11 in 2009)
  (out of 4,852 hospitals analyzed)

NIH Funding Rank
- Highest level in Sinai’s history at >$250M

AAMC Rank (unchanged from 2009)
- U.S. Medical Schools (AAMC) 2010 #3 Research Dollars/Principal Investigator
  #2 Research Density

“A” on AMSA Pharmafree Scorecard on COI policies (1 of only 12 in country)
## Major Recruitments

<table>
<thead>
<tr>
<th>Role</th>
<th>Department</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chair</td>
<td>Medicine</td>
<td>Mark Babyatsky, MD</td>
</tr>
<tr>
<td>Chair</td>
<td>Neurology</td>
<td>Stuart Sealfon, MD</td>
</tr>
<tr>
<td>Chair</td>
<td>Pediatrics</td>
<td>Lisa Satlin, MD</td>
</tr>
<tr>
<td>Chair</td>
<td>Psychiatry</td>
<td>Wayne Goodman, MD</td>
</tr>
<tr>
<td>Chair</td>
<td>Radiation Oncology</td>
<td>Kenneth Rosenzweig, MD</td>
</tr>
<tr>
<td>Director</td>
<td>Transplant Institute</td>
<td>Sander Florman, MD</td>
</tr>
<tr>
<td>Chief</td>
<td>Division of HemOnc/DOM</td>
<td>William Oh, MD</td>
</tr>
<tr>
<td>Chief</td>
<td>Division of GI/DOM</td>
<td>Bruce E. Sands, MD MS</td>
</tr>
<tr>
<td>Chief</td>
<td>Breast Surgery</td>
<td>Elisa R. Port, MD FACS</td>
</tr>
<tr>
<td>Chief</td>
<td>Thoracic Surgery</td>
<td>Raja Flores, MD</td>
</tr>
<tr>
<td>Director</td>
<td>Mood &amp; Anxiety Program</td>
<td>Dan Iosifescu, MD</td>
</tr>
<tr>
<td>Director</td>
<td>Multiple Myeloma Program</td>
<td>Sundar Jagannath, MD</td>
</tr>
<tr>
<td>Director</td>
<td>Head &amp; Neck Onc Program</td>
<td>Marshall R. Posner, MD</td>
</tr>
<tr>
<td>Medical Director</td>
<td>Ruttenberg Cancer Center</td>
<td>Randall Holcombe, MD</td>
</tr>
</tbody>
</table>

*Over 350 faculty recruited at all levels*
Tripartite Missions of MSSM

1. Education
2. Research
3. Clinical
Education:

Teaching tomorrow’s doctors and scientists that:

Science, Service and Advocacy are inextricably related &

Our scientific goal is to bridge the gap between Bench-Bedside-Community

Curriculum Reforms in both Medical & Graduate School to seamlessly integrate:

– Clinical relevance into scientific research &

– Scientific principles into clinical training

To produce leaders in bio-medicine & healthcare

Committed to clinically relevant breakthrough science
Science and Medicine in the Service of Society

John H. Morrison, Ph.D. & David Muller, M.D.

Biomedical science matters most when it is translated into tangible benefits for patients. Every day, scientists expand our understanding of the genetic basis and molecular pathways underlying disease. This knowledge should ultimately be translated into highly personalized approaches to diagnosis, treatment, and prevention of disease for individual patients and communities.

As leaders in the education of tomorrow’s physicians and scientists, how are we to respond to the expanding scope of twenty-first-century research? At every level of our educational mission, we must seamlessly integrate clinical relevance into scientific research, and scientific principles into clinical training.

Historically, medical schools emerged within universities primarily to educate physicians, yet Master’s and Ph.D. programs centered at medical schools now produce the vast majority of the scientists trained in biological arenas relevant to medicine.

All too often, these programs simply co-exist, isolated by different curricula and cultures. If we are to maximize our capacity to impact clinical practice through scientific discovery, we need to produce leaders in biomedicine and health care who see themselves as members of large, interactive teams committed to clinically relevant breakthrough science. Clinically oriented medical school courses should become part of the graduate school curriculum and translational scientists should be part of bedside rounds for teaching physicians-in-training.

But we can take this one step further. For over a century, the defining missions of medical schools have been to care and advocate for the underserved and to push the envelope of biomedical research. Because of increasing specialization, technological advances, and the competitive nature of research funding, most medical schools in the country have had to commit to one primary goal: they are either research oriented, or community and public-service oriented.

Teaching tomorrow’s physicians and scientists this “hidden curriculum” — that science, service, and advocacy are unrelated — is an injustice to both our students and society. They can no longer exist as separate entities if we are to achieve our potential for applied innovation, such as preventing a patient from developing dementia and protecting a community from the environmental toxins that will lead to cancer.

Science and service, innovation and advocacy: The National Institutes of Health (NIH) has already embraced the need to bridge the chasm between the researcher’s laboratory bench, the patient’s bedside, and the community by setting the expectation for translational research that moves us toward the ultimate goal of better and more accessible care for all.

Medical schools must acknowledge the equal importance of these missions if we are to produce leaders who will be agents for change, translating the bounty of scientific discovery into improved quality of life in our communities and across the globe.

Science is the underpinning of everything we do, but in the absence of service, there is no context for understanding why our scientific breakthroughs matter.

John H. Morrison, Ph.D., is Dean of Basic Sciences and the Graduate School of Biomedical Sciences at Mount Sinai School of Medicine in New York City.

David Muller, M.D., is Dean for Medical Education.
Medical School Curriculum reform continues:

- Longitudinal Clinical Experience (LCE) allows each student to follow a patient for first 2 years

- INSPIRE provides opportunities for scholarly research

- New track started - MD/MS in Clinical Research (PORTAL)

- Tailored clerkships in primary care & neuroscience for students planning a career in either

- On-going evolution of 1st and 2nd year curricula towards a competency & systems based model
Education:

Medical School Additional Reforms:

- Develop a parallel track to HuMed program that allows students to develop their own undergraduate curriculum based on HHMI/AAMC Scientific Competencies

- Complete the redesign of Genetics/Genomics curriculum

- Develop competitive tracks dedicated to Primary Care & Global Health
  - Dual degree, with Masters in either Public Health or Bioethics
  - Offer scholarships to 5 students in each track
  - Loan forgiveness if they stay in the field 2 years after completing residency

- Fundraising priority
  - Scholarships and relief of student debt
**Education:**

Graduate School Curriculum reform:

- Redefined Training Areas to align with institutional priorities and strengths
  - Promotes optimal match between student interests and faculty strengths
  - Provides opportunities for students to work in the best labs
  - 3 broad Training Areas converted to 5 new focused Training Areas

- Integrated all patient and population-based programs into Graduate School
  - MS & PhD in Clinical Research, MS in Genetics Counseling, Masters in Public Health
  - Genomics course part of core requirements for PhD students
  - PhD students may also take courses in Clinical Research

- Concerted effort to increase Training Grants
  - Every Training Area has a Training grant or is applying for one

- Development of metrics to assess success of both students and mentors

- Due to these changes
  - # of applicants increased 20% for PhD program & 10% for MD/PhD program
### Education: Quality – Matriculating Class of 2010

**MD Students**

- Number of Complete Applications: 4,751
- Number of Interviews (excl EA/MSTP): 784
- Size of Class: 141
- MSTP: 11
- Humanities and Medicine: 28
- NYS State Residents: 32%
- Women: 47.8%
- URM: 19.7%
- Average MCAT: 35.4
- Average GPA: 3.71
- Number of Undergraduate Schools: 59
  (Brown=12, Harvard=10, Columbia=9, Cornell=9, Duke=6, Princeton=6)
# Education: Quality – Matriculating Class of 2010

## PhD Students

- Number of Complete Applications: 436
- Size of Class: 39
- NYS State Residents: 28%
- Women: 46%
- URM: 8%
- Average GRE: 1,290
- Median GPA: 3.53
- Number of Undergraduate Schools: 32
  - (Columbia 2, Emory 2, Boston College 1, Dartmouth 1, Hopkins 1, NYU 1, Tufts 1, Wash U 1)
Education: Quality – Matriculating Class of 2010

MD/PhD Students

- Number of complete applications: 256
- Size of class: 11
- NYS State Residents: 54.5%
- Women: 27%
- URM: 0
- Average MCAT: 37
- Median GPA: 3.84
- Number of UG Schools: 11

(Brown U: 1, Bowdoin College: 1, Pomona College: 1, Johns Hopkins: 1, Harvard: 1)
Education

• Independent Degree Granting Status
  Site Visit                July 2010
  Commission Vote          Nov 2010
  MSSM degrees             May 2011

• Philip Landrigan, MD appointed Dean for Global Health
  • MSSM joins Consortium of Universities for Global Health (CUGH) w/Harvard,
    Penn, Yale & Columbia
  • Will allow students to work in programs at Duke, UCSF etc.

• New Appointments:
  • Ross Cagan - Associate Dean, Graduate School of Biological Sciences
  • Mark Callahan – Associate Dean for Excellence in Clinical Care
  • Janice Gabrilove – Director, MS & PhD in Clinical Research
  • Nils Hennig – Director, Master of Public Health Program
  • Yasmin Hurd - Director, MD-PhD Program
  • Carol Porter - Associate Dean for Nursing Education & Research
  • Peter Gliatto – Associate Dean for UME and Student Affairs (1/1/11)
  • Reena Karani – Associate Dean for UME and Curricular Affairs
Mission
The IME serves to support and develop our education community by improving:
• Teaching
• Leadership
• Curriculum Development and Assessment
• Individual Scholarship
• Recognition of Our Educators

Three Levels of Membership
• Basic for all educators
• Fellow and Master Educator for those who demonstrate excellence and have made significant scholarly contributions to medical education

First Advanced Members inducted in 2009
• 14 Master Educators
• 11 Fellows
• From 14 Departments

Important Resource for Mentoring and Developing Scholarship
Research

- MSSM maintained #18 in NIH Funding with >$250M in grants

- AARA Funding Outstanding with over $50M awarded this year

- The efficiency of space utilization has increased significantly:
  - In 2006, the average institutional research density was $565/sf
  - In 2007, the average institutional research density was $639/sf
  - In 2008, the average institutional research density was $651/sf
  - In 2009, the average institutional research density was $750/sf

- This increase has enabled us to make major recruitments within our existing space
Research Productivity

Number of Grant Proposals submitted to NIH
Increasing the number improves funding probability

<table>
<thead>
<tr>
<th>Year</th>
<th>Federal</th>
<th>Private Non-Profit</th>
<th>Industry</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY 2005</td>
<td>394</td>
<td>386</td>
<td>224</td>
</tr>
<tr>
<td>FY 2006</td>
<td>496</td>
<td>371</td>
<td>200</td>
</tr>
<tr>
<td>FY 2007</td>
<td>533</td>
<td>401</td>
<td>224</td>
</tr>
<tr>
<td>FY 2008</td>
<td>509</td>
<td>369</td>
<td>213</td>
</tr>
<tr>
<td>FY 2009</td>
<td>767</td>
<td>320</td>
<td>203</td>
</tr>
</tbody>
</table>
Research Productivity

NIH Grant Trend

![Bar chart showing the趋势 of contracts and grants from 2005 to 2009. The chart indicates a significant increase in grants in 2009.]
Direct Expenditures per Principal Investigator

Purpose: Assesses research productivity of faculty engaged in research

Higher Number is Favorable

Formula: Direct Expenditures / Number of PIs

MSSM Productivity Increased:
- 2008 ~ $550,000/PI
- 2009 ~ $600,000/PI

Mean = $287,584

Fiscal Year 2009
Grant $s per Net Assignable Square Foot (NASF)

Purpose: Reflects productivity of research space

Higher Number is Favorable

Formula: Total Grant $s / NASF

MSSM Space Density

- Increased:
  - 2008 ~ $650/NASF
  - 2009 ~ $750/NASF

Mean = $331 Total Costs per NASF

Direct Costs

Median All Schools

Median Private Schools

Indirect (F&A) Costs

Median Public Schools

Fiscal Year 2009

(8/16/10)
Research Strategic Goals

- Initiatives in Genomics and Experimental Therapeutics

- Recruitments:
  - Chair of Pathology
  - Division Chiefs in Pulmonary & Infectious Diseases
  - Research faculty to occupy CSM – process will start late 2011

- Fund-raising for key initiatives

- Ensure that initiatives are aligned with resources

- Continue efficient management of space
Faculty Practice

Accomplishments:

• Visits increased 8.4% over 2009
• Charges increased 9.8% over 2009
• Mount Sinai Faculty 4th nationally in Revenue/Faculty
• Key personnel recruitments:
  – Chief Operating Officer – Rick Deese
  – Chief Medical Officer – Mark Callahan
  – Director of Ambulatory Revenue Cycle & Practice Development

Initiatives:

• 5 East 98th to be renovated & renamed in honor of May gift
• Rebranding of Faculty Practice and related Marketing efforts
• Off-campus practice development
• Impact of Healthcare Reform
### Faculty Practice – In Top 5 in Revenue/Faculty

FPA Patient Care Receipts compared to other Top Ranked Schools

- **2009 - #5**
- **2010 - #4**

<table>
<thead>
<tr>
<th>School</th>
<th>Receipts</th>
<th>Clinical MDs</th>
<th>Receipts/ MD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northwestern U Feinberg SOM</td>
<td>426,896,137</td>
<td>670</td>
<td>637,158</td>
</tr>
<tr>
<td>Cornell U Weill Med Coll</td>
<td>412,018,192</td>
<td>702</td>
<td>586,921</td>
</tr>
<tr>
<td>Washington U in St Louis SOM</td>
<td>560,665,653</td>
<td>1,112</td>
<td>504,196</td>
</tr>
<tr>
<td><strong>Mount Sinai School of Medicine</strong></td>
<td><strong>394,983,757</strong></td>
<td><strong>863</strong></td>
<td><strong>457,687</strong></td>
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<tr>
<td>Wake Forest University SOM</td>
<td>274,770,681</td>
<td>638</td>
<td>430,675</td>
</tr>
<tr>
<td>U Wisconsin Medical School</td>
<td>472,683,202</td>
<td>1,144</td>
<td>413,185</td>
</tr>
<tr>
<td>U Rochester SOM &amp; Dentistry</td>
<td>303,314,024</td>
<td>746</td>
<td>406,587</td>
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<tr>
<td>Emory University Sch of Med</td>
<td>467,485,488</td>
<td>1,168</td>
<td>400,244</td>
</tr>
<tr>
<td>Columbia U Coll of P &amp; S</td>
<td>467,594,615</td>
<td>1,248</td>
<td>374,675</td>
</tr>
<tr>
<td>Duke University Sch of Med</td>
<td>383,038,352</td>
<td>1,071</td>
<td>357,646</td>
</tr>
<tr>
<td>Ohio St U Coll of Med-Pub Hlth</td>
<td>200,907,316</td>
<td>633</td>
<td>317,389</td>
</tr>
<tr>
<td>Indiana University Sch of Med</td>
<td>377,268,053</td>
<td>1,192</td>
<td>316,500</td>
</tr>
<tr>
<td>Johns Hopkins University SOM</td>
<td>375,699,502</td>
<td>1,208</td>
<td>311,010</td>
</tr>
<tr>
<td>Yale University Sch of Med</td>
<td>293,827,070</td>
<td>972</td>
<td>302,291</td>
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<tr>
<td>UC Los Angeles Geffen SOM</td>
<td>372,202,804</td>
<td>1,307</td>
<td>284,776</td>
</tr>
<tr>
<td>University of Virginia SOM</td>
<td>209,803,348</td>
<td>760</td>
<td>276,057</td>
</tr>
<tr>
<td>Univ Iowa Carver Coll of Med</td>
<td>181,539,940</td>
<td>686</td>
<td>264,635</td>
</tr>
<tr>
<td>Beth Israel-Deaconess Med Ctr</td>
<td>243,579,961</td>
<td>923</td>
<td>263,900</td>
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<tr>
<td>University of Florida COM</td>
<td>179,287,531</td>
<td>742</td>
<td>241,627</td>
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<tr>
<td>University of Maryland SOM</td>
<td>176,398,700</td>
<td>777</td>
<td>227,025</td>
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<tr>
<td>Oregon Health &amp; Science U</td>
<td>196,950,585</td>
<td>893</td>
<td>220,549</td>
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<tr>
<td>Massachusetts General Hospital</td>
<td>490,116,067</td>
<td>2,271</td>
<td>215,815</td>
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<tr>
<td>University of Cincinnati COM</td>
<td>138,223,060</td>
<td>650</td>
<td>212,651</td>
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<tr>
<td>UC San Diego Sch of Med</td>
<td>134,875,529</td>
<td>843</td>
<td>159,995</td>
</tr>
<tr>
<td>University of Washington SOM</td>
<td>190,317,754</td>
<td>1,332</td>
<td>142,881</td>
</tr>
</tbody>
</table>
FPA - Impact of Health Care Bill

- Sole practitioners moving to integrated practices
  - Opportunity for FPA to align with physicians in private practice
- Incentives for primary care physicians
  - Currently not well compensated in Fee for Service (FFS) model
  - New compensation models need to be developed
- Electronic Medical Records (EMR)
  - Sinai has already implemented
- Expenses vs Reimbursement
  - Efficient high quality care delivery to reduce complications & readmissions
- Quality Initiatives
  - Patient satisfaction is a measure of quality of service & patient experience
  - EMR’s allow better monitoring/assessment of outcomes of new initiatives
FPA Challenges

• Development of capacity for continued growth, particularly off campus

• Payor market continues to evolve away from non-par physician advantage

• Faculty office space – essential for further growth

• Standardization of the use of systems and process flows

• Improving the patient experience, by specifically focusing on telephone access and wait time issues
FPA Strategic Goals

- Meet the 7% growth target for FPA revenues
- Strengthen the bottom line for the Departments, the FPA and the School
- Continue to improve the patient experience, as measured by Press Ganey survey scores
- Streamline and automate payment posting
- Complete the rebranding of the FPA and renovations at 5 East 98th Street
- Complete the implementation of the Epic EMR and ensure Meaningful Use criteria are met
- Set a standard for excellence in the FPA website
- Improve the revenue cycle – reach top quartile of UHC benchmarks (AR management, charge capture, cost, etc.)
School Financial Goals

- Positive financial operating results using only the 5% endowment spending rate investment income.

- Philanthropy supports the gap between strategic plan revenues and spending on growth initiatives.
Department’s Financial Goals

Departments must consistently achieve positive financial results.
- Positive financial margin targets will be developed for each Department for 2011 along with incentives for achieving the targets

Research and Clinical Performance Guided by Metrics:
- Research Faculty Salary Recovery - minimum 65%
- Research Density per sq. ft. minimums:
  - $500 - Wet bench
  - $1,000 - Dry Bench
- Monthly Monitoring of Research Spending targets for every grant

Clinical
- FPA revenue cycle metrics (A/R mgmt, gross/net collection rate)
- Compensation models for every department
- Performance goals for every physician

Philanthropy used to support growth initiatives.
The School has met its overall financial goals since the Strategic Plan was approved (000’s).

Financial operating results:

<table>
<thead>
<tr>
<th>Year</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010 (Budget)</td>
<td>$ -</td>
</tr>
<tr>
<td>2009</td>
<td>$ 71</td>
</tr>
<tr>
<td>2008</td>
<td>$(2,880) *</td>
</tr>
<tr>
<td>2007</td>
<td>$ 236</td>
</tr>
<tr>
<td>2006</td>
<td>$ 852</td>
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</table>

* Loss resulted from market downturn

Fund raising for the $1 billion Capital Campaign, exceeding $598 million, has been sufficient to support the Strategic Plan spending.

Research and FPA growth major contributors to School’s financial success.
Financial Challenges to Continued Success

• The School’s continued financial success requires:
  • Clinical and research growth from:
    • new recruits,
    • faculty productivity, and,
    • efficient, cost effective operations.
  • Additional space to support education, research and clinical operations.
  • Philanthropy support according to capital campaign goals.
Action Plan to Meet Financial Challenges

• Establish positive margin targets for every department and incentives to encourage achievement.

• Continued research & clinical growth from new recruits:
  – 100+ researchers for CSM
  – Additional clinicians based on business plans
  – Productivity of existing faculty.

• Generate more program space from moving Administrative Services off campus.

• Philanthropy support according to Capital Campaign goals.
Research Faculty Survey

Survey conducted in Spring/Summer 2010

- 287 faculty responded (38% response rate)

Purpose - to assess overall satisfaction with:

- Research support services
- Institutional support services
- Teaching responsibilities
- Conflict of Interest issues
- Faculty development
- School policies and work environment
Overall Conclusions

- 75% of respondents agree that Mount Sinai promotes Basic Science research and reputation
- The most satisfied respondents were new recruits or long-term faculty
- There are broad opportunities for research collaboration (across departments, labs, basic and clinical, outside MSSM)
- NIH and financial COI regulations and Mount Sinai’s implementation are well understood
- GCO, IACUC and Academic Computing received the highest satisfaction ratings
Research Faculty Survey- Highest Scores
(Ranked by score-high-low)

Education
• Helpfulness of Graduate School & Post-doc office staff
• Opportunity to teach in the Medical and Graduate School
• Equity in teaching assignments in the Medical and Graduate School
• Academic Computing

Research
• Library Resources/Education/Support
• Inter-laboratory and inter-departmental collaboration
• Grants & Contracts Office

Institutional Policies and Work Environment
• Appreciation for and understanding of NIH/COI Disclosure Policies
• Promotion of Basic Science
• Computing Resources, network & data exchange
Research Faculty Survey - Lowest Scores

(Ranked by score-high-low)

Education
- Faculty development opportunities for Graduate School educators
- Recognition and reward for teaching effort
- Administrative support for Medical Education teaching

Research
- Sufficient mentorship of junior faculty
- Research is rewarded equitably compared to clinical and teaching activities
- Effective interfaces between Departments and Institutes

Institutional Policies and Work Environment
- Engineering
- Usefulness of website
- Construction
- Space Planning
Research Faculty Survey – Next Steps

August
• Survey distributed to Chairs and Department Heads
• Departments asked to develop actions plans in response to survey results

September
• Action plans submitted to Dean’s Office for review

October
• Approved plans implemented

Will use web to communicate additional details
Follow-up survey will be conducted in the future to monitor satisfaction
In May 1804, Capt. Meriwether Lewis and William Clark headed up the Missouri River with 45 men and a well-stocked keelboat.

They would be the first American citizens to experience the Great Plains, to see the daunting peaks of the Rocky Mountains and struggle over them, and after encountering cold, hunger, danger, and wonders beyond belief – they would become the first of their nation to reach the Pacific Ocean by land. They wrote the first scientific descriptions of an astounding 178 plants and 122 animals.

How did they do it?
Lewis & Clark were great friends and molded their men into a great team
- They demonstrated that there is almost nothing that people cannot do if they support each other
- They knew each man’s strengths and were willing to trust and rely on each other when needed
- The men shared their hopes, dreams and came to love each other and would sacrifice their life for each other
- They had developed a bond - to become a band of brothers
- Together, they were able to accomplish feats that astonish us even today

What were they called?
The Corps of Discovery
The Mount Sinai Corps of Discovery

A Band of Scientists

with

No boundaries or silos

who

Know each other’s strengths

and

Can work collaboratively

with

Synergism and no competition

providing

Great mentorship to each other

will be

Amazed by what can be accomplished……..TOGETHER
We’ll buy’em – If you’ll read’em

Contact: paulette.moore-akonnor@mssm.edu
The Mount Sinai
Corps of Discovery
Seek the Ocean of Knowledge
Center for Science and Medicine-Occupancy 2012

Help meet the strategic plan goals of excellence in translational research
Explore new horizons and discover breakthrough cures for today’s diseases