Neuroscience, Behavior and Health Focus Group Summary

On May 16 and 17, 2011 focus groups in four areas relevant to NBH were convened. The focus groups were:

- Addictive Behaviors
- Diseases of Modern Society (Diabetes, Obesity, Cardio- and Neurovascular Disease)
- Normal Development and Developmental Disorders
- Stress, Anxiety, Pain, and Mood Disorders

A total of 39 UVM faculty members, chosen for their diversity in perspective on these areas and representing different departments and colleges at UVM, participated. A member of the NBH steering committee acted as a moderator, each group had a designated note-taker, and each session was recorded. The goals of the focus groups were to identify UVM strengths in each area, collaborative opportunities, a niche for UVM within which we could seek national prominence, and resources and faculty needed to achieve success. A summary of each focus group discussion was compiled in collaboration with the note takers (Hallie Davis-Penders and Kerry Swift) after review of the taped conversations. The summary was emailed to the group participants for editing and correction. Once the summaries had been finalized and approved by the members of the focus groups, they were released to the NBH Steering Committee.

Of the four areas, clear niches for UVM could be identified in three: **Addictive Behaviors, Normal Development and Developmental Disorders, and Stress, Anxiety, Pain and Mood Disorders.** The fourth group, Diseases of Modern Society, felt that research efforts in this area were scattered, and no real strength emerged from which NBH could build an area of national prominence. There was confusion within this group as to the goal and purpose of the focus group, and the participants seemed to be less well informed about the proposal that led to Neuroscience, Behavior and Health being chosen as one of the Spires of Excellence in the Transdisciplinary Research Initiative. *One key area, obesity, will be fit into the three remaining focus areas, as appropriate.*

The majority of participants were pleased to have the opportunity to interact with other faculty members with common interests across the university. They encouraged NBH to create similar opportunities in the future (especially with dinner), perhaps in more focused areas. The best opportunity to achieve national prominence at UVM is the ability to integrate and translate communication, research, outreach, and education from basic science to communities and state policy. Being a small state, Vermont was viewed as a very good “incubator” for innovation in preventive and interventional strategies in the respective focus areas.

Notably, three of the four groups mentioned the strong need for more expertise at UVM in human genetics and epigenetics (with an emphasis on genetic epidemiology), cognitive psychology, and behavioral economics/decision-making. Three of the four also stated a strong need for an animal MRI, a true core facility in human imaging, and an expansion of the existing DNA analysis facility to accommodate large scale genotyping and analysis of epigenetic marks on DNA. Other important needs were: a modern facility for behavioral research (Dewey Bldg is outdated and too distant from the core of neuroscience), centralized communication network (to be developed by NBH), release time from teaching to develop collaborations and write grants, more support for grant submission, and better cooperation between FAHC and UVM to create a more “research friendly” environment (greater access to
Detailed minutes from each focus group with lists of attendees follow this summary. The Steering Committee will convene the focus groups again in the Fall semester for further discussion and refinement of the issues.

**Summary of needs assessment** for the three focus groups NBH will develop:

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<th>Normal Development and Developmental Disorders</th>
<th>Stress, Anxiety, Pain, and Mood Disorders</th>
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<td>• Animal models of addiction</td>
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<td>• Better access to patients at FAHC for consent</td>
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<td>• Improved communication across campus</td>
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<td>• List of potential collaborators</td>
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NEUROSCIENCE, Behavior and Health (NBH) Initiative
Focus Group: Addictive Behaviors
May 16, 2011, 5:30 pm – 7:30 pm – Williams Room, Davis Center

Attendees:
• Mark Bouton, Professor, Psychology - Moderator
• Hallie Davis-Penders, NGP Asst., NGP - Note taker
• Felix Eckenstein, Professor, Neurology/ANNB
• Alexandra Potter, Research Asst. Professor, Psychiatry; Clinical Asst. Professor, Psychology
• Brian Flynn, Research Professor, Family Medicine; Clinical Asst. Professor, Office of Health Promotion Research; Professor, Psychiatry
• Hugh Garavan, Associate Professor, Psychology and Psychiatry
• Martin Kuehne, Emeriti Faculty, Chemistry
• Ted Marcy, Professor, Med-Pulmonary
• Gail Rose, Research Asst. Professor, Psychiatry; Asst. Professor, Education
• Marjorie Meyer, Associate Professor, ObGyn-Maternal Fetal
• Stephen Higgins, Professor, Psychiatry

Proceedings:
• Mark Bouton, Moderator of the Addictive Behaviors Focus Group, called meeting to order at 5:53 after dinner and casual conversation.
• Welcome and Introductions
  • Mark Bouton welcomed the Focus Group participants, and introduced himself as the moderator and a member of the NBH Spire Steering Committee. He also introduced Brian Flynn as a member of the Steering Committee and Hallie Davis-Penders as the meeting’s note taker.
  • Mark Bouton reminded everyone of the following:
    • the goal of the NBH spire is to strengthen transdisciplinary research and teaching at UVM that arrives at a deeper understanding of diseases in which behavior has a causal role;
      • Cited related statistics
        • 450,000 deaths occur each year due to smoking
        • By 2015 75% of US adults will be overweight; 41% obese
        • 40% premature deaths in US can be attributed to health-related behaviors
    • that the idea is to combine strengths in basic neural science, behavioral science, and interventional science;
    • that NBH needs to find a niche or niches in which UVM can become a national leader;
    • that the discussion was an essential step forward for the spire;
    • that four focus groups were meeting in parallel; he named other focus groups:
      • Diseases of Modern Society: Vascular Disease, Diabetes, Obesity and Cancer
      • Stress, Trauma, Stress, Anxiety, Pain, and Mood Disorders
      • Normal Development of the Nervous System and Developmental Disorders
  • Mark reviewed each of the discussion questions posed on the agenda; explained that the meeting was recorded and that recording will be transcribed. Transcription will be circulated to allow for focus group participants’ revisions.
  • Focus Group participants provided self-Introductions.

• Agenda
  • “What strengths are there in this area at UVM?”
    • Vermont:
• Well-defined and accessible population. People don’t often move (far) and are easy to locate; there is a great opportunity to get longitudinal data
• Vermont is a small state, so people are closely integrated across sectors.
  • UVM has strong ties with Vermont’s Public Health community
  • UVM has access to Vermont policy makers and therefore influence on design of programs, systems and policy in Vermont. “All the Way Through Model” possible in Vermont.
• UVM:
  • Behavioral focus is compatible with public health
  • lower barriers to interaction than larger universities; community more interactive and willing to communicate; provide input
  • undergrads are a strength- as subjects and as participants in studies (compared to medical centers and med schools that are distant from undergrad campuses)
  • Known for targeted research
  • Strong foundation in behavioral research. Suggestion was made that UVM’s strength in behavioral research serve as starting point, and that research at cellular level could later provide more information.
  • Imaging is a new and exciting direction at UVM
  • Meeting brought together community members with varied interests – plasticity all the way to policy.
  • UVM seems to have research programs related to treatment of addiction at all levels; this doesn’t seem to be the focus at many other universities.
  • UVM doesn’t have many walls, so integrating a niche research program(s) may happen more efficiently, and more credibly than at other institutions.
  • The combination of a medical school (research programs) and undergraduates (populations) on one campus, which provides opportunity for integration of research and community outreach. Community dissemination.
  • UVM has many people connected to research who look at things through processes rather than diagnoses and has strong language and tools available to convey this alternative perspective. Funding may be more available to projects/researchers that cross boundaries by looking at processes.

• Focus Group discussed weaknesses:
  • Vermont’s and UVM’s populations are homogeneous.
    • Hard to secure funding.
  • Vermont’s and UVM’s populations are small; hard to do large studies
  • State policy can stand in the way of access to populations; need to improve access to patients to get permission for records

• “What common interests are there?”
  • Treatment; though little on the neurobiology of treatment
  • Vulnerability; prevention
  • Genetics; epigenetics (integration of behavioral and molecular work):
    • What genes underlie vulnerability?
    • Gene-environment interactions will be important; other Spires/Focus Groups may be able to contribute to this conversation
    • Behavioral studies can drive genetic studies; genetics can drive basic science
    • Small populations with genetic markers have been identified in the clinic; collaborations possible at UVM
  • Cognitive testing
    • Is impulsivity a common trait across all addictive behaviors? Does the failure to control impulsivity cause addiction?
• Common neurobiology evident in subjects with gambling addictions and obesity, though the similarities and differences, and what drives the similarities and differences are not well known.
• Bickel’s test for discounting is another way to test for vulnerability to addiction
• How relevant are co-morbidities?
• What factors, genes, behavior predict addiction and resilience?
• How readily modified are traits that predispose individuals to addiction?

“What special niche could UVM fill to become a national leader?”
• We are strong in treatment; Most scientists and universities focus on what causes a disease or addiction, assuming that this tells you how to treat it, but few study how treatment works
• For example, there is some evidence in VT that a genetic polymorphism that makes populations vulnerable, makes them easier to treat
• Could break down genes, circuitry, brain chemistry changes that occur with treatment
• Behavioral treatment is top-down cognitive focused
• Understanding “behavior change”
  • Involves learning
  • Executive function
  • How do physicians, insurance companies, policy-makers change their behaviors? How do they change the behavior of their patients/clients/constituents?
  • How does behavior change affect treatment?
  • What are mechanisms of behavior change?
  • Does this generalize across addictive behaviors?
• Behavioral scientists can work with neurobiologists to provide more comprehensive research
• Take principles of research to personalized medicine, which is a focus of Francis Collins at NIH
  • Using behavior analysis can provide patients with treatment profiles and follow response to treatment profiles.
  • Eventually (long-term goal) it would be nice to view behavior as a system (like respiratory system) and use biological and social markers in check-ups; translational.

“What additional faculty expertise do we need to fill this niche?”
• ANNB/Neurology are merging; this is an opportunity for NBH spire-related faculty.
• UVM is missing research in human genetics and genetic epidemiology; huge weakness.
• Opportunity to combine human and animal genetics in one study; could be potentially high impact
• We need people who are studying animal models of addiction. Animal research studying brain causes (as opposed to correlates) could parallel and complement brain imaging research in humans. This could build on ongoing animal behavioral work.

“What additional infrastructure do we need?”
• Whatever NBH asks for should be very concrete and incentivized, so administration and community will be invested.
• Encourage FAHC to move toward more research-friendly environment at clinics.
  • Better access to patients for consent
  • Better systems to facilitate research
  • Be cautious of demanding specialized assessments from physicians who are pressed for time; this may not be possible at FAHC/UVM
  • Is solved in some projects by asking for referrals to research projects
• Starting and sustaining collaborations
  • Improving communication
  • Creating lists, resources, and more seminars across disciplines
• Pilot money aligned with overarching mission
• Human imaging core; current access for fMRI is limited
• Funds for cross-disciplinary speakers
• Neuroscience COBRE facilities have good resources, including people who have knowledge/skills. NBH could build on these existing resources.
• NBH should be a hub for communication; means for individuals to learn about each other; focus group is a good start
• Resource for contacting primary care practitioners to facilitate research
• Psychiatry has held a weekly seminar and would like to include more people from the NBH community. NBH community members would be asked to attend as well as possibly speak.
• Mark Bouton said that the NBH Steering Committee would report back to Focus Groups in the fall. He adjourned the Focus Group meeting at 7:55 pm.
NEUROSCIENCE, Behavior and Health (NBH) Initiative
Focus Group: Diseases of Modern Society: Vascular Disease, Diabetes, Obesity and Cancer
May 16, 2011, 5:30 pm – 7:30 pm – Jost Room, Davis Center

Attendees:
Cindy Forehand, Professor, Anatomy & Neurobiology, moderator
Kerry Swift, Technology Licensing Officer, Note-taker
Mark Nelson, Professor and Chair, Pharmacology
Jean Harvey-Berino, Professor and Chair, Nutrition and Food Sciences
Diane Jaworski, Associate Professor, Anatomy & Neurobiology
Phil Ades, Professor, Medicine
Robert Shapiro, Professor, Neurology
Jeff Spees, Assistant Professor, Medicine
Carol Miller, Professor, Psychology
Naomi Fukagawa, Professor, Medicine

Proceedings:
• NBH Introduction and Overview was given by Cindy Forehand

• Focus Group participants provided self-Introductions

“What strengths are there in this area at UVM?”
• Cardiovascular research that focuses largely on vessels and blood flow, but also strong cerebrovascular group
  o Neurovascular coupling
  o although blood flow influences brain function, not much strength here on that
  o Little clinical focus on innervation of heart; cardiac variability
• Little research interest in metabolic basis of obesity at UVM; if there is, would it be related to NBH?
  o Issues regarding weight regulation and behavior involves many biological processes
• Autonomic neurobiology and physiology with potential for translational collaboration
• Easy to talk with colleagues across university; everyone is positive and collaborative

“What opportunities in research are there in field?”
• Plasticity on contralateral side of brain after stroke; but few working on CNS plasticity
• Identify focus, develop PPG in an area where people already work together; high level of effort required
• Long lead times and high level of preparation required for program project grants; require a great deal of planning and high profile investigators; NBH should be careful how foci are chosen
• Anatomic aspects of disease (?)

“What is needed?”
• Resources for the spires to accomplish goals
• Database for metrics of success such as money and publications

• Faculty Needs
  o Anatomy and Neurobiology will merge with neurology to become Neurological Sciences; neurologist will be hired as chair. Efforts in new dept should be synergistic with NBH.
  o Faculty member to run an animal magnet; will someone come if we don’t have a magnet?
How many will come in through departments as spire-related hires?

- **Facilities**
  - Small animal magnet for imaging; absolutely essential; centralized facility will bring folks together. Dartmouth agreement is not enough because animals must be housed near magnet.
  - Two-photon imaging in order to use opto-genetics, optical probes, and genetic ion sensors to control neural activity in vivo (we may be getting another one soon)
  - Metabolic chambers for mice (Oximex)
  - Need CTSA (probably not likely); consortium with Dartmouth not likely; GCRC will continue to exist but severely reduced
  - Proximity to colleagues is important; support interaction; difficult to have interaction with scientists in Colchester Research Facility
  - Better access to video conferencing. Setting these up should be as easy as sending and responding to an email. Telemedicine not adequate; too much scheduling required at both ends for a conference. How is this addressed at larger universities?
  - Videoconferencing across campus is difficult because COMIS is different from UVM IT

- **Summary:** areas within this focus group seem to be only peripherally related to existing strengths within NBH. The greatest strength at the basic science level is vascular function, but there seems to be a paucity of connections to neuroscience or behavior. A connection to Food Systems might relate to the impact of food choices and behavior and vice versa, which then lead to obesity and type II diabetes.
Neuroscience, Behavior and Health (NBH) Initiative
Focus Group: Normal Development of the Nervous System and Developmental Disorders
May 17, 2011, 5:30 pm – 7:30 pm – Chittenden Room, Davis Center

Attendees:
• Timothy Stickle, Associate Professor, Psychology - Moderator
• Hallie Davis-Penders, NGP Assistant, Graduate College - Note taker
• Rae Nishi, Professor, ANNB; Director, Neuroscience Grad Program
• Betsy Hoza, Professor, Psychology
• Susan Ryan, Director, Center on Disability & Community; Professor, Integrated Professional Studies
• George Leibowitz, Assistant Professor, Social Work
• Bryan Ballif, Asst. Professor, Biology
• John Green, Associate Professor, Psychology
• Patty Prelock, Dean, CNHS; Professor, Pediatrics and Communications Sciences & Disorders
• Louisa Kalsner, Associate Professor, Neurology and Peds-General.

Proceedings:
Tim Stickle, Moderator, called meeting to order at 5:48 PM
Participants provided self-introductions

“Strengths at UVM in this area”
• Social cognition, executive functioning and attention – seem to be a part of many areas of research at UVM.
• There is a core group of people at UVM interested in basic developmental issues/ neuro-stem cells as well as developmental neurotoxicity
• People are focusing on embryonic development, but the most interesting age may be post-natal, when trauma and abuse have impact on connections being made in the brain.
• Behavioral neuroscience; memory; emotion. Clinical psychologists can provide the bridge; can use animals to look at cellular and molecular levels, and can work with humans; can make translational connection.
• Clinics – kids in Vermont are funneled through a small group of people; should be easy to identify kids. Clinics may be seeing more significant degree of impairment/medical causes: autism, delays, at risk socially due to genetics, abuse, foster care/adoption, etc.
• Vermont is small – can gather group of experts easily and also access the community. Vermont is a laboratory, so if challenges can be met it is a great place to make things happen.
  • There is one major medical university.
  • Trying to get all parents training to support communication and social interaction once diagnosis has been made as part of our collaborations with Children’s Integrated Services (CIS).
  • Good access in applied setting, because of small state.
  • Access to clinics, nimbleness, communication are strengths.
    • VT – ILEHP program led by Steve Contompasis promotes interdisciplinary approaches to interventions with children with neurodevelopmental disabilities, and is attractive to students on a practice level (in social work and health related fields).
    • Capacity at all levels – have to find disorder that has animal model – lead to hypothesis to test mechanisms – mRNA/protein analysis (resources available at UVM); need to make connections like the one between Victor May, Jom, Donna, etc. PACAP good example of transdisciplinary success. Disorder in clinic → identify part of the brain → ask for animal model → use UVM resources to find mechanisms.
• Educational Strengths –
  • NGP, Neuroscience undergrads. Many students working in labs; NSF loves that component; strong sense of mentorship; scientists are willing to engage students.
• UDL – has been funded here; using neuroscience principles to teach teachers how to teach; people learn in different ways so UDL encourages learning across a spectrum.

• Challenges:
  • How can people at various levels continue to communicate with each other/have access to each other?
  • NBH could solicit people here at UVM to see how they could participate.
  • Vermont is rural, so how to connect with people in rural Vermont, who don’t connect with UVM easily.

“Critical Issues Emerging in the area that UVM could fill as Niche”
• What is fundable? Wherever NBH goes needs to be fundable (primarily by NIH). NIH accepts applied sciences research; NSF accepts basic science research.
• There is enough expertise at UVM to submit grant application for transdisciplinary center.
• Hot topics at neuroscience meetings are autism, genetic abnormalities and how do they express in behavior, ADHD. Genetics may show phenotypes (spectrum of phenotypes may show various disorders; autism, learning disorders); the role of epigenetics is becoming a greater part of the dialogue
• Understanding pre-frontal cortical function is a critical issue emerging in the field. Broad area. Deficits at executive functioning level are at play in multiple disorders – impulsivity, pre-frontal circuits, cholinergic system, lack of attention or attention to the wrong thing.
• Social cognition and executive function are very related. Can all be tied together from brain cells to clinical intervention – strong chance for Center grant especially in translational research.
• Example of benefits of exercise in educating students: there is evidence-based research being done here in schools – not done wide-spread. Could expand work currently being done (by B. Hoza & J. Green) that connects basic science via animal models to human work examining impact in classrooms
• fMRI – Chris Filippe in radiology might be interested in collaborating.
• Benefit of being small and having medical center here – could have data repositories and infrastructure (with grant) in order to capture information about kids coming through hospital. Need grant in order to get infrastructure. Neil Sarkar is currently working on data repository.
• University of Michigan doing some social cognitive research, but not many others with social cognitive centers/focus, especially with children or from a developmental perspective. UVM could be focused on prevention. At larger universities, subgroups are focused on animal models and others are focusing on human studies, but they seldom interact with one another. UVM is small enough to be able to collaborate on various levels/models (animal and human), including prevention related policy-providing a unique niche
  • There is currently a bill in the VT legislature that would fund autism prevention and early intervention until age six. There are many questions asked when policies are being developed/implemented. Many of the disorders share similar challenges, so the ability to show the processes on many levels and that prevention can impact many anti social disorders and that will cost the government a lot less – lessen economic impact. That is how policy makers will listen.
• UVM could come at research from a psycho/social development perspective.
  • How do you get to the maladaptive disorders?
  • Behavior – how are people going about improving children’s behavior?
  • Common underlying Processes – Motivational systems; processes are related to various areas of the brain.
  • What are some interventions?
• Training piece – build on transdisciplinary programs like the NGP – especially at undergraduate level – could go from undergrad to post-doc with transdisciplinary research/education. For example, students could help run studies at a center, in collaboration with the clinics; If NBH could create this type of training center that would be marketable to new students and would be , unique – students wouldn’t get that anywhere else.

“What do we need?”
Money, time, space – a center... 😊
Faculty
- Epigenetics is a void at UVM. There is not an expert at UVM clinically or research-based. From behavior point of view - patterns development – mosaicism during development. You may have a genetic link with these disorders, but it may not be 100%, because during development certain cells may develop differently.
- Human genetics is another area that UVM needs; goes hand in hand with epigenetics. There are clinical geneticists and molecular geneticists, but not human geneticists. There are some neurologists who are good human geneticists – with mergers of ANNB/neurology maybe a hire in this area would be possible.
- Cognitive Psychologist – need someone here at UVM who focuses on developmental processes/cognition – developmental cognitive neuroscience; executive function
- Brain Imaging. Need director of imaging center, to increase access to imaging/fMRI outside of Newhouse lab. Right now it takes a long time to get access and no formal way to get access/collaboration.
- Animal Magnet person – animal imaging expert
- Expert in behavioral economics;
- Encourage NBH Spire-related hiring in depts.

Facilities and Resources:
- Animal imager
- Need facility for genotyping; currently DNA analysis facility run by COM is not adequate
- Model of an fMRI to give kids practice before going in the fMRI.
- Funding/Money:
  - Need seed grants to encourage collaborations; needs to be flexible, so money can be available right away; after writing a proposal. Can be used to bridge existing research and collect data. CNHS has some money like this now.
  - Indirect/Discretionary Funds are possibly declining at COM and UVM as whole, so it may be worth approaching VT agencies for indirect costs/funds to put toward an initiative like this.
  - Current grants that have interdisciplinary research are viewed more favorably – collaboration is key.
    - Young faculty members face challenge in this area; if they participate in this type of grant they may not be listed as Primary Investigator, which may hurt their chance for tenure. Currently dependent on senior colleagues and external reviewers – there’s no formal process to consider transdisciplinary research in tenure review.
      ▪ Identify external reviewers who understand philosophy of transdisciplinary research/grants.
      ▪ Needs to be support for people coming in to be transdisciplinary.
      ▪ How do investigators and colleges share credit on grants?
      ▪ NIH is having multiple PI grants now, so that gives more credit. Other granting agencies are not doing that yet. OSP is currently listing grants as single PI – they don’t even count co-PIs at this point. They are merging with grants and contracts, so there may be opportunities to change this.
    - The NBH will be creating database of funding/grants.
- Time:
  - Teaching release to do more collaborative research. Many in CAS need to teach 5 courses/year; CNHS - 4 per year. Profs can buy out some teaching requirements with grants. Each department is different. Even if you have enough to buy out, you may not have people to cover courses, and can’t get release-time. Need commitment from administration to cover those courses if buy-out eligible. Need financial resources and human resources to provide support for release; it’s a challenge hiring enough people with appropriate expertise, because we’re not in NY or Boston.

Summary
- Niche could be development of executive function and social cognition, which cuts across many developmental disorders and includes susceptibility/development of addictive disorders
• Because we are small we can reach across and collaborate across disciplines in the way larger universities cannot do.
• We have the potential to build a transdisciplinary translational training program that spans every level of training from undergraduate to post-doctoral.
• The best way to do this is to write a Center grant that has research, training and teaching components.
  • In order to do that we must have release time and support.
  • Also need seed money.
  • Other strengths/opportunities:
    ▪ Prevention – birth to six.
    ▪ Universal screening statewide program
    ▪ Opportunities to link to central medical system; Develop databases;
    ▪ Using VT as a laboratory to establish a niche at a variety of levels – smaller collaborative projects could lead to state-wide programs/policies.
    ▪ The fundamental Basic Science side looking at development of frontal cortex circuitry and changes that are imposed on that circuitry by the environment, abuse, exercise, prenatal development in terms of alcohol and drug use.
    ▪ Look at genetic liability for temperaments that put people at risk combined with environmental effects.
    ▪ Looking at interplay between the mechanistic level carrying through the socio-cultural context and to environmental levels. How far do you carry it systemically?
• Meeting adjourned at 7:53 pm.
NEUROSCIENCE, Behavior and Health (NBH) Initiative
Focus Group: Stress, Trauma, Anxiety, Pain, and Mood Disorders:
May 17, 2011, 5:30 pm – 7:30 pm – Williams Room, Davis Center

Attendees:
- Sharon Henry, Professor, Rehabilitation and Movement Science – Moderator
- Haley Woodside-Jiron, Associate Professor, Education - Co-moderator
- Kerry Swift, Technology Transfer Officer, - Note taker
- Victor May, Professor, Anatomy & Neurobiology
- Jom Hammack, Assistant Professor, Psychology
- Gary Mawe, Professor, Anatomy & Neurobiology
- Kelly Rohan, Associate Professor, Psychology
- Matthias Brewer, Assistant Professor, Chemistry
- Thomas Simpatico, Professor, Psychiatry
- Michael Cannizzaro, Assistant Professor, Communication Sciences
- Paul Newhouse, Professor, Psychiatry
- Mark Bouton, Professor, Psychology

Introduction to the Focus Group and self-intros

What are the existing strengths and common interests in this area here at UVM?
- Biobehavioral group strong in learning, memory, anxiety and fear
- Lots of people who do different things; very transdisciplinary but not deep in any areas except a few like vascular physiology
- Functional imaging
- Strength in autonomic neurobiology and physiology in Anatomy & Neurobiology Dept
- UVM is a “nice” place. People are more cooperative here. Translational research just happens if you ask. There are very positive interactions between clinicians and basic scientists. Not true at other larger academic medical centers such as Columbia University where access is more difficult.
- Other places are very rigid in the questions asked – here we can be asking different questions all of the time. Take advantage of integrated levels.
- Chemists are open to collaboration. Chemists have a skill set to build molecules for folks. One fear that chemists have to enter a collaboration – am I just a service or active member of the collaboration. To reverse it, people won’t just screen my stuff. Collaborations develop if there is a common interest.
- Local company that sells small animal behavior testing apparatus- MedAssociates is a strength. Also collaborates with scientists at UVM to design visualization and physiology testing apparatus.
- There is a strong multidisciplinary group studying adaptation of behavior and nervous system to challenge/change at UVM. This topic branches out very quickly to many areas– metabolism, communications, education. How does behavior/stress change the basic mechanisms? Perhaps an opportunity to interact with Food Systems spire with respect to eating, obesity
- Better access to resources more quickly and easily than at other universities. Not one stop shopping, but few obstacles in the way.
- Possible to integrate basic mechanisms with therapy, education; outreach to community. Possible to test therapies in an underserved population.
What are critical issues in this area and is there a special niche for UVM?

- Post-traumatic stress disorder (PTSD) – There may be a unique opportunity for access to subjects through an information feed from Dept of Corrections to Defense Dept to cross-match everyone from military to determine who is eligible for services. We will have access to this database - what is possible? Can we identify possible subjects? We could approach these things on multiple levels, including translation.

- Caution: Consider fit based upon biological mechanisms. NIMH will not entertain grants unless they are based on an RDOC (research diagnostic categories) based process. Will not accept DSM categories, which are not biologically defined. Everything must be considered within biologically relevant constructs. Diagnoses are not biological constructs. GWAS studies have been based on diagnostic criteria, not biological constructs, and very little has been discovered. For example, “PTSD” not acceptable - must be based on a mechanistic process in the brain.

- How treatments are working and neurobiological mechanisms underlying them and effects on behavior
- Identification of new drugs, treatments; Pharma has given up on drug development; NIH will be supporting more
- Advantage and niche for UVM is integration of efforts from molecular – behavior, treatment – community outreach
- Strength is state of Vermont as an incubator and as real world laboratory; any of the work applied to the state described as real world strength. This is something that is difficult to accomplish in other larger states.
- Maintaining health; preventing relapse and promoting relapse; understanding mechanisms; few people doing this
- Caution: outcome measures critical. Are there good outcome measures for psychiatric and mood disorders? Not straightforward like measuring bone density. Measurements of behavior are confounded by many other variables.

What do we need?

Faculty
- Human geneticist(s) and molecular biologists familiar with human genetics
- Basic scientist studying pain who is interested in a vertical integration model
- Scientist to run a human imaging core for UVM; it is presently a COM facility. University has to be behind it, not just supported financially by COM so it is accessible to all. There is a radiologist currently running imaging facility who has many clinical responsibilities; also two physicists
- Health economist
- Need more psychologists who study adult mental health
- Cognitive neuroscientist – could be imaging person too

Resource and Infrastructure needs
- Release from teaching to write grants
- Compendium of people, their current research questions, future research goals and available research tools.
- Administrative assistance for submitting grants; professional grant writer
- Genotyping lab
- Need more interactions
• Psychology needs a new building (also chemistry). Facilities for behavioral research are small, overcrowded, and animal facility does not meet standards. Very difficult to move animals from Given to Dewey. Can we get a commitment from UVM to accelerate new building?
• Genotyping lab, personnel, epidemiologists and statisticians
• Functional imaging core for humans and animals; need small animal magnet.
• High throughput drug screening facility; is there enough use for this? Can it be out-sourced?
• Allocation of resources in fMRI for training to use scanner; data analysis; paradigm design for imaging; funds for this have been requested in the pending behavior and neurobiology COBRE
• Need common site that describes everyone’s research interests and provides contact information; make needs known.

Other comments:
Keep people talking; more dinners; perhaps more focused; have chalk talks; let multiple topics flourish.