

## ARTICLE

# Retention of Underrepresented Minority Faculty: Strategic Initiatives for Institutional Value Proposition Based on Perspectives from a Range of Academic Institutions

Joseph A. Whittaker<sup>1</sup>, Beronda L. Montgomery<sup>2</sup>, & Veronica G. Martinez Acosta<sup>3</sup>

<sup>1</sup>Department of Biology, School of Computer, Mathematical & Natural Sciences, Morgan State University, Baltimore, Maryland 21251; <sup>2</sup>MSU-DOE Plant Research Laboratory and Department of Biochemistry and Molecular Biology, Michigan State University, East Lansing, Michigan 48824; <sup>3</sup>Biology Department, School of Math Science and Engineering, University of the Incarnate Word, San Antonio, Texas 78209.

The student and faculty make-up of academic institutions does not represent national demographics. Racial and ethnic minorities are disproportionately underrepresented nationally, and particularly at predominantly white institutions (PWIs). Although significant efforts and funding have been committed to increasing points of access or recruitment of under-represented minority (URM) students and faculty at PWIs, these individuals have not been recruited and retained at rates that reflect their national proportions. Underrepresentation of URMs is particularly prevalent in Science, Technology, Engineering, and Mathematics (STEM) disciplines. This reality represents a national crisis given a predicted shortage of workers in STEM disciplines based on current rates of training of all individuals, majority and URM, and the intersection of this limitation with persistent challenges in the recruitment, training, retention and advancement of URMs who will soon represent the largest pool of future trainees. An additional compounding factor is the increasingly

disproportionate underrepresentation of minorities at higher professorial and administrative ranks, thus limiting the pool of potential mentors who are correlated with successful shepherding of URM students through STEM training and development. We address issues related to improving recruitment and retention of URM faculty that are applicable across a range of academic institutions. We describe challenges with recruitment and retention of URM faculty and their advancement through promotion in the faculty ranks and into leadership positions. We offer specific recommendations, including identifying environmental barriers to diversity and implementing strategies for their amelioration, promoting effective and innovative mentoring, and addressing leadership issues related to constructive change for promoting diversity.

*Key words: diversity; faculty retention; higher education; institutional transformation; STEM; under-represented minorities (URM)*

---

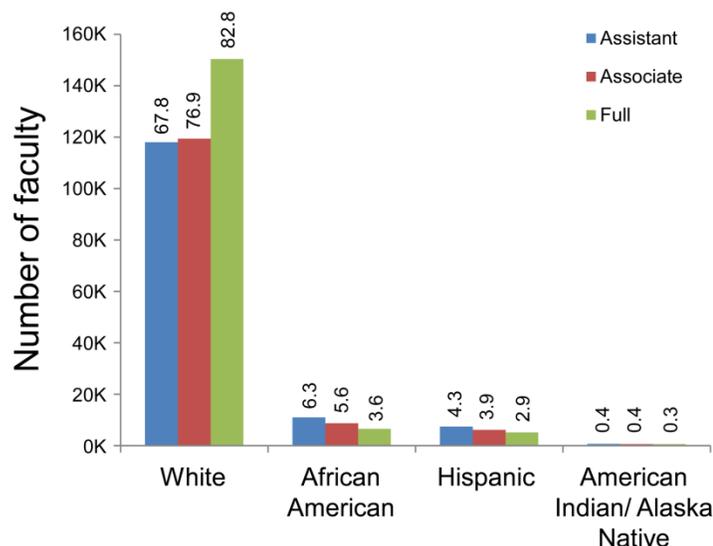
## OVERVIEW—THE REAL ISSUE: DILEMMA OR NATURAL ORDER OF THINGS?

Universities are facing a number of challenges based on our evolving society (Zusman, 2005). One of these is the significant shifting of demographics in the United States towards racial and ethnic groups traditionally underrepresented in higher education. Academic institutions largely do not represent the demographics of the national population, reflecting significant underrepresentation of individuals from a number of ethnic and racial minority groups (Moreno et al., 2006). This problem has been partially attributed to a common practice of academic institutions of promoting points of access with significantly less attention to innovation when it comes to promotion, retention and advancement of underrepresented minorities (URMs) (Whittaker and Montgomery, 2014). The problem, however, also stems from a lack of widespread recognition that promoting diversity has to become a secondary mission that will support the primary mission of universities (Castro et al., 2009), particularly public institutions, to educate the general population broadly. Ultimately, it is time that universities realize that the traditional processes for promotion, retention, and advancement are not working for

URM faculty and promote innovative changes in these areas.

The underrepresentation of particular groups is particularly evident in the sciences (Leboy and Madden, 2012). This phenomenon is exceptionally pressing given the intersection between a growing need to improve training in the sciences generally and the shifting national demographics. Thus, the recognized need to improve the current rates of training of individuals to avoid a major shortage of workers in particular fields (i.e., predicted to be nearly 1,000,000) in the science, technology, engineering, and mathematics (STEM) disciplines (President's Council of Advisors on Science and Technology, 2012; U.S. Congress Joint Economic Committee, 2012) will require significant innovation and creativity in the areas of diversity promotion in higher education—particularly in regards to *recruitment and retention*. The recruitment, retention and advancement of underrepresented (URM) faculty, including African American, Latino/a American, and Native American or Pacific Islanders, remain a significant issue throughout academia. URM students continue to be underrepresented in the doctoral ranks from which future representation at the faculty level and beyond will be drawn. In 2011, approximately 13% of earned doctorates were awarded to

URM students (U.S. Department of Education, National Center for Education Statistics, 2012), despite the recognition that URMs comprised nearly 30% of the national population in that time frame (Humes et al., 2011). Even as URMs are underrepresented in the graduate ranks, the magnitude of underrepresentation drastically increases in the faculty ranks and disproportionately so at increasing professorial and administrative ranks (Figure 1; U.S. Department of Education, National Center for Education Statistics, 2013; Rankins et al., 2014).



*Figure 1.* Demographics of full-time instructional faculty by academic rank (Assistant, Associate, or Full Professor) for fall 2011. Numbers above bars represent the percent of total full-time instructional faculty members. Data obtained from U.S. Department of Education, National Center for Education Statistics, 2013.

In addition to the issue of inequality of representation, the low numbers of URMs across academia, particularly at the faculty level, represent a compounding problem for promoting and sustaining future diversity at these institutions (Whittaker and Montgomery, 2014). Diverse faculty members often contribute a disproportionate amount of effort to mentoring URM students and early career faculty (King and Chepyator-Thomson, 1996; Woods, 2001; Zambrana et al., 2015). Thus, low representation, high turnover, and attrition among URM and female faculty provide critical challenges that must be addressed (Moreno et al., 2006). This described diminishing representation in the highest faculty ranks results in fewer role models and less potential for growth into positions of leadership for URM and/or female faculty. The perception (or perhaps reality) that a lack of senior URM faculty and administrators impairs the transfer of political and social capital needed for successful navigation of academic environments by URMs at more junior levels has been reported (Turner et al., 2008; Zambrana et al., 2015). Thus, innovation in promoting diversification of the faculty at all levels through improved recruitment *and* retention could provide a system of support for promoting successful diversification at the student level. This is

especially true given that mentoring as a form of cultural capital to students of color is often linked to the number of professors of color available to serve in this capacity (Gasman, 2010; Whittaker and Montgomery, 2014; Zambrana et al., 2015).

Significant effort has been contributed to improve the access of diverse individuals to higher education. However, much of what has been done in attempts to promote diversity for students (Whittaker and Montgomery, 2012) and faculty (Whittaker and Montgomery, 2014) has led to limited, and sometimes transient, increases, rather than widespread transformation of higher education environments into institutions that reflect the diversity of the larger society. This observation is supported by the continuing low numbers of URMs in the academy (Moreno et al., 2006; National Academy of Sciences, 2011). To this end, much has been written about the history, research, best practices and strategies to address underrepresentation; however, the challenges remain. Moreover, the persistent ‘calls to action’ designed to catalyze diversification of the professoriate have resulted in incremental changes at best (National Academy of Sciences, 2011). As such, successes of a few URM individuals appear to have led to a sense of complacency along with generalized notions that URMs no longer face discrimination. The successes of a few can lead to many institutions contracting recruitment and retention efforts. The few (or single) individuals that have been recruited are then left as potential ‘token’ representatives with high service demands, which are not among rewarded performance criteria and/or of limited impact (Turner et al., 2008; Brayboy, 2003). While discrimination or imposed isolation may not always be blatantly overt, a critical factor and consideration in addressing this issue revolves around environmental and inherent unconscious biases directed towards URMs in the academic workplace (Laden and Hagedorn, 2000; Smith and Calasanti, 2005; Zambrana et al., 2015). Institutions should recognize this as a sense of urgency and commit to the transformational and sustained work required to mitigate the problem, which will require long-term, strategic initiatives and commitment of resources.

## BARRIERS TO DIVERSITY

Given long standing histories of inclusion and exclusion in academic environments (Hurtado et al., 1998; Girves et al., 2005; Sethna, 2011; Harper, 2012; Moss-Rascusin et al., 2012; Zambrana et al., 2015), efforts to transform institutions into ones that reflect national racial and ethnic diversity will require the identification and acknowledgement of barriers (Whittaker and Akers, 2009) and the development of interventions to mitigate them (Wadia-Fascetti and Leventman, 2000; Noy and Ray, 2012; Whittaker and Montgomery, 2012, 2014; Zambrana et al., 2015). These barriers include inequities in training, degree attainment, and recruitment and retention of URMs described above (which lead to absence of critical mass); established environmental culture and traditions, which precipitate practices of exclusion and contextual biases; disparities in levels of research grant support by URM

Barrier	Select Reference(s)
Inequities in training, degree attainment and recruitment and/or retention	Moreno et al., 2006; Leboy and Madden, 2012; Whittaker and Montgomery, 2012; Whittaker and Montgomery, 2014
Established environmental culture(s) and traditions	Hurtado et al., 1998; Girves et al., 2005; Sethna, 2011; Harper, 2012; Moss-Rascusin et al., 2012; Zambrana et al., 2015
Disparities in research grant support	Ginther et al., 2011; National Science Foundation, 2012
Limited or inadequate integrations into academic communities and/or isolation	Laden and Hagedorn, 2000; Tillman, 2001; Cawyer et al., 2002; Smith and Calasanti, 2005; Turner et al., 2008; Zambrana et al., 2015)
Levels or perceptions of environmental support or lack thereof	Crowley et al., 2004
Negative stereotypes about underrepresented minorities	Figuroa and Hurtado, 2013
Implicit bias	Turner, 2002; Moody, 2004
Lack of will or understanding on the part of institutional leaders/leadership	Price et al., 2005

*Table 1.* Barriers to increasing diversity in academic environments. Listed are specific factors that serve as barriers to increasing and maintaining diversity in academic environments, particularly majority or predominantly white institutions.

faculty (Ginther et al., 2011; National Science Foundation, 2012); inadequate program support; limited or inadequate integration into scientific communities and/or isolation (Laden and Hagedorn, 2000; Tillman, 2001; Cawyer et al., 2002; Smith and Calasanti, 2005; Turner et al., 2008; Zambrana et al., 2015); perceptions of environmental support or lack thereof (Crowley et al., 2004); negative stereotypes held about URMs (Figuroa and Hurtado, 2013); and implicit bias or an unconscious attitude or stereotype about a person or group (Turner, 2002; Moody, 2004), among others (Table 1).

Academic institutions must directly address issues of micro-inequities and intrinsic biases that arise from or give rise to many of these barriers, along with the subtle messages of personalized devaluation conveyed to URM faculty in predominantly white institutions (PWIs) (Laden and Hagedorn, 2000; Williams, 2001; Constantine et al., 2008; Smith et al., 2011; Zambrana et al., 2015). These concerns often transcend faculty rank and divisions, and can range from persons not being acknowledged or given appropriate attribution for work done, to being completely ignored unless there is intervention by one in superior authority (Zambrana et al., 2015).

Not being respected or actively included in these environments eventually reinforces negative stereotypes and reduces self-efficacy to the point where URMs can begin to question their own relevance or sense of belonging (Dancy and Jean-Marie, 2014; Zambrana et al., 2015). Questions about relevance then have the potential to impact individual motivation to exhibit talents as reflected in intellectual creativity and research productivity (Cora-Bramble et al., 2010). In extreme cases, this may even give rise to responses suggestive of 'self-contempt' among URMs, especially those subjected to persistent and repeated biases or discriminatory practices (Laden and Hagedorn, 2000; Smith and Calasanti, 2005). Very often,

they adopt personas demonstrative of implied insecurities conveyed within their environment in an attempt to 'survive' by emulating those who appear to thrive. When considered in the context of persistent workload imbalance, e.g., having less than desirable teaching and committee assignments, or in the face of continuous discriminatory environmental stressors, URM faculty ultimately will be made to feel devalued and lose confidence. Moreover, without appropriate collaborative support and resources, those in STEM disciplines become de-skilled, and thereby develop a need to retool that is often not encouraged or supported. The intentional and demonstrated lack of trust, support, and commitment from the institution and its leadership, often instill a sense of powerlessness among URM faculty that routinely hastens their departure from the academy. Clearly the failure to engage URMs, integrate and promote idea sharing, as well as place value on their skills and contributions, are major factors impacting retention. To diversify, innovate and succeed, institutions and their academic leaders should understand that there is no single correct way to do things, including managing a department or running an institution. However, with appropriate levels of accountability, attention to thoughtfully objective, effective, and impactful management and leadership is needed.

## THE IMPORTANCE OF RACIAL AND ETHNIC DIVERSITY IN ACADEMIA

Most institutions recognize the value of multi-cultural outreach and engagement, but often fail in reconciling its importance and associated implications for organizational decision-making. In other words, institutional leaders recognize the benefits of recruiting URMs and gaining ideas from diverse sources, but lack the understanding or will to ensure they are integrated into an environment of

respect, inclusion and meaningful engagement (Price et al., 2005). These deficiencies in full integration across all groups are central to the development of barriers and convey messages that URMs are not highly valued in the academic environment. Transformative initiatives to change institutional cultures into ones that represent national diversity and widespread inclusion require recognition of these barriers and the development and implementation of initiatives to eliminate them (Laden and Hagedorn, 2000; Brayboy, 2003; Whittaker and Montgomery, 2012, 2014; Zambrana et al., 2015).

Improving diversity at institutions can be motivated by social justice or moral imperatives (Garibay, 2013), the development of an internal rationale to drive institutional excellence, or some combination of both or additional factors. The link of diversity to excellence has been addressed from many perspectives, including the recognition that a diversity of thought can transcend the impact of individual domains of expertise or groups of homogenous expertise in developing solutions to complex problems (Page, 2007).

**Leaders as agents of constructive change.** The major impact points for leadership issues related to constructive change in regards to diversity are at the department chair and dean levels. These persons should be aptly trained and supported in recognizing and addressing biases and other cultural challenges within their respective domains. Moreover, they have the responsibility to broadly promote equity via balanced workload assignments, clarifying evaluation as well as reappointment criteria, promotion and tenure policies, and in creating opportunities across many sectors (Bensimon et al., 2000; Laden and Hagedorn, 2000; Turner et al., 2008). These individuals can both serve as effective mentors (Bensimon et al., 2000; Laden and Hagedorn, 2000; Bower, 2007), as well as promote the creation of an environment that values and demonstrates equitable mentoring and support (Bensimon et al., 2000; Laden and Hagedorn, 2000). Thus, leaders must be identified who are committed to serving as change agents (Wall, 2009), i.e., individuals willing to challenge traditional norms and serve to promote the 'diffusion of innovation' (Rogers, 2003). Such efforts to promote innovation will undoubtedly require leadership's understanding of the problem along with the willingness and ability to make convincing arguments, motivate and inspire stakeholders, and to invite, engage and moderate dissent. In leaders carrying out such responsibilities effectively, institutions can begin to address and mitigate biases in class, competency and gender, and will likely promote success by becoming effective advocates with accountability through skill development. The end result will likely be the development of a more inclusive, collaborative and positive workplace climate. Some specific actions may result in or engender: improved institutional climates, improved effective recruitment and retention, increased visibility and leadership for URMs, investments in new talent (including mentoring and training), and/or increased engagement of senior level faculty in promoting best practices for development of supportive environments.

**Transformation of institutional climate.** Specific efforts to improve institutional climates are optimally initiated with honest and systematic assessments of current climate and environmental barriers (Elliott et al., 1996; Hurtado et al., 1998, 2008; Whittaker and Montgomery 2012; Dowd et al., 2013; Thompson and Campbell, 2013). As a part of transformations to improve institutional climates for all, attention to increased visibility and leadership roles for URMs are critical (Page, 2003). Such efforts can contribute to long term potential for diversification as these individuals also bear the major effort of mentoring and supporting URM students who will serve as the future pool of diverse academicians (Wunsch and Chattergy, 1991; Gilligan et al., 2007; O'Rourke, 2008; Hayes, 2010; Merchant and Omary, 2010; Hurtado et al., 2011; Whittaker and Montgomery, 2012). These issues of critical mass and increased leadership representation can be greatly enhanced by attention to improvements in effective recruitment, retraining (retooling) and retention. Critical mass has been defined as "meaningful representation or a number that encourages underrepresented minorities...to participate...and not feel isolated" (Lettre, 2006). Attention to critical mass can facilitate individuals being evaluated and valued for what each brings, rather than being seen as a representative or "token for his or her race" (Lettre, 2006). Thus, critical mass indicates a representation or percentage of URMs that "should amount to more than tokenism" (Lettre, 2006). Improvements in the domains of critical mass and improved URM leadership representation must include and promote training of search committees and address issues of confidentiality and implicit bias (Turner, 2002; Moody, 2004). In this regard, a role for cognitive and/or contextual biases in the response to URM faculty entry into PWI environments on the part of some majority faculty should be addressed directly. Even though some majority colleagues may not have direct experiences with URMs, they could be influenced by irrelevant information from others, which may confound or negatively impact their judgments and decision making. On the other hand, majority colleagues may consciously make decisions about URM competence and qualifications, based on the fact that they wish to be seen as a team player. In such a case, these individuals will not 'go against the crowd' – even though they may recognize that decisions and/or processes under consideration may be flawed or biased.

Ultimately, change can be stimulated by innovation and investments in new areas. Successful investments in new talent, mentoring and training require that the institutions ensure that these persons recognize how things work, understand the levels and seats of power, both real and perceived (Montgomery et al., 2014; Zambrana et al., 2015); address issues of resiliency – including how to recover from mistakes or errors (Cora-Bramble, 2006; Cora-Bramble, et al., 2010); and encourage individuals to engage in conversations – i.e., to support a need for continued engagement and feelings of 'being included' (networking) (Cawyer et al., 2002; Zambrana et al., 2015). All of these efforts can be supported by an increased engagement of senior level faculty and a focused drive towards building critical mass, as appropriate. In this

regard and beyond, department chairs and deans often have critical roles in determination of the climate of a domain within an institution (Bensimon et al., 2000; Laden and Hagedorn, 2000). Further, department chairs in particular are key to making sure mentoring and fair practices are implemented in intrinsically pervasive ways in the department. However, many administrators are untrained in developing and promoting such strategies and climate, instead regularly utilizing traditional and Darwinian-style approaches rather than supporting innovative mentoring and faculty development activities.

## RECOMMENDATIONS FOR ADDRESSING URM FACULTY RETENTION AND MITIGATING BIASES

To effectively address institutional change for promoting diversity through improvement of recruitment and retention, values and attitudes that are critical for institutional building and development must be identified. Furthermore, stakeholder training to promote the acceptance of new and 'different' persons who may be associated with 'foreign' or norm-breaking thinking and approaches must occur. Such approaches are progressive and forward-looking. Institutions must identify and recruit for future growth and development; taking the long-term view. Currently, visionary leadership in this regard is largely absent and actions are chiefly based on short-term perspectives that are constrained by both tradition and resources. Often, leadership decisions also occur principally as a response to environmental resistance to change that is pervasive.

To accomplish the required visionary leadership positioning, both competencies and cultural values must be the foci. Competencies must be engaged as leaders attempt to understand, identify and clarify success factors; promote a mix of expertise and ideas that should go beyond maintaining *status quo*; and develop practical tools to promote change such as workshops on cultural competency (Lim et al., 2008). In regards to cultural values, effective leaders should be the best judge of cultural needs; and thereby promote an environment that addresses concerns around self-discovery and self-acceptance of all constituents.

**Remedies.** Potential remedies are many. Here we highlight a few areas of critical importance. These include conducting an honest climate assessment; establishing formal retention strategies and mentoring; setting clear goals for growth and progress; and deciding how to measure successes. Additionally, special attention to innovation should occur, including a need to address cultural concerns, while working to avoid duplicating the current team. Specific mechanisms for avoiding duplication of current environments which have failed to significantly increase diversity of academic faculty nationally include reflecting change and vision in job descriptions and the development of unit/institutional level mission and/or vision statements.

**Climate assessment.** Challenging institutional climates, particularly at majority institutions, present real and formidable barriers to URM persisting in STEM (Elliott et al., 1996; Padilla et al., 1997; National Research

Council, 2011). Working to change climates to support transformation, including as related to institutional diversity, requires starting with a comprehensive and honest assessment of the current climate to facilitate the identification of barriers (Elliott et al., 1996; Hurtado et al., 1998; Hurtado et al., 2008). Real and sustained change of climate will require iterative assessment, interventions and follow-up evaluation (Whittaker and Montgomery, 2012). Although work regarding specific environmental interventions that serve effectively to transform institutional climates remains limited, suggestions and evidence for the impact of diverse learning communities that address academic and social integration and quality mentoring of URM students and faculty have emerged (Dodson et al., 2009; Williams et al., 2011; Whittaker and Montgomery, 2012).

**Mentoring and promotion of URM leadership.** One of the most effective methods for promoting retention among URM is the provision of mentoring and support systems. In fact, numerous studies have shown mentoring to be an effective way to recruit, retain and promote the advancement of faculty, and that the absence of, or inadequate, formal mentoring has disproportionately negative effects on women and faculty of color (Alexander, 1992; Sorcinelli and Yun, 2007; Rockquemore and Laszloffy, 2008; Turner et al., 2008; Montgomery et al., 2014; Zambrana et al., 2015). In regard to mentoring, one must consider that there are historical perceptions, family background, segregation patterns, and limited access to role models and mentors during the early years of a URM faculty member's career that continue to provide challenges as they begin their journey in the current environment of science which is still very much predominantly white and male. Many of those challenges fuel reported feelings of isolation (Aguire, 2000; Laden and Hagedorn, 2000; Tillman, 2001; Girves et al., 2005; Smith and Calasanti, 2005; Diggs et al., 2009; Turner and González, 2015; Zambrana, 2015). This isolation has been experienced and described as two-fold; isolation within one's family/culture (Padilla et al., 1997; Dodson et al., 2009); and isolation within academia, given that with the vast underrepresentation of URM among U.S. faculty, these individuals may be the only non-white or non-male representative of a department or committee for which they serve (Laden and Hagedorn, 2000; Smith and Calasanti, 2005; Turner et al., 2008). Thus, having a mentor or role model during early formative years of a URM individual's career can provide understanding of the inequalities that a URM may have experienced or may still experience and thus allow them to be better prepared for the hard road ahead toward advancement in academia (Montgomery et al., 2014; Zambrana et al., 2015). Many current mentoring approaches for promoting understanding and preparation of URM still focus on assimilation into academic environments, rather than recognizing and accommodating cultural norms of socialization that may be associated with success of individuals from groups historically underrepresented in academia (Laden and Hagedorn, 2000; Smith and Calasanti, 2005; Harper, 2010; Montgomery et al., 2014; Turner and González, 2015).

Collectivist or community-focused approaches to socialization may be more prevalent in the communities of origin of URMs than individualistic approaches (Gaines et al., 1997; Coon and Kemmelmeier, 2001; Su et al., 2009; Smith et al., 2014; Thoman et al., 2014), the latter of which are prevalent in academic socialization and mentoring.

To address many of the issues of isolation and expansion of cultural understanding of universities, it is imperative that more URM faculty rise to the ranks of full professorship and into leadership positions. However, it may be extremely difficult for one to find encouragement as a young URM faculty member when so few of those that have gone before them are like them. Some would argue that URM-specific mentoring networks accomplish this need of providing mentorship towards promotion and leadership by URM faculty who are outside the mentee's university (Zambrana et al., 2015). Such groups have been instrumental in the advancement of the careers of many URM faculty; however, they were never meant to serve as nor should they continue to be a replacement for guidance from one's "home" institution (Whittaker and Montgomery, 2014; Zambrana et al., 2015). Similarly, the creation of online social networks may serve to reduce isolation. Such forums can allow one to integrate technologies in creating opportunities to meet and discuss science and serve as an effective medium for teaching and mentoring. In fact highly successful, national mentoring networks with large online or electronically delivered components exist to support faculty of color – e.g., MentorNet (<http://www.mentornet.net/>) and the National Center for Faculty Development and Diversity (NCFDD, <https://facultydiversity.site-ym.com/>). Some of these programs are fee-based and despite providing excellent resources can serve to give institutions a false sense that they have invested in resources to 'fix' the problem of mentoring minorities and promoting URM leadership. Local heuristic knowledge is still vitally important and should be addressed by local, contextual provision of mentoring resources (Whittaker and Montgomery, 2014) and leadership development.

**Promotion of collaborative engagement.** Additional means for building consensus and successfully promoting the integration of a diverse constituency includes encouraging the forging of new collaborations. This can be accomplished targetedly through a departmental leader giving joint teaching or service assignments to build trust (i.e., coordinate activities) or through promoting the informal building of research collaborations (Bensimon et al., 2000; Bower, 2007; Turner et al., 2008). In such efforts, the goal should be to encourage work for the benefit of the group, not individual success (via partnership and engagement). Specific means for accomplishing collaborative engagement can include encouraging and urging information sharing or sharing tools, resources, and/or work spaces – towards basic goals. Furthermore, intramural financial or administrative programs could be developed and provided to stimulate collaborative research initiatives. Ultimately, the promotion of collaborative intellectual endeavors has great power in promoting the transparency of the true reality of knowledge production as

a collaborative, interdependent process (Casadevall and Fang, 2012). This is in stark contrast to focusing on the false but widely accepted view of scholars conducting research in an individualistic fashion to demonstrate an ability to conduct 'independent' scholarly investigations and attainment of individual merit (Bagilhole and Goode, 2001; Seonghee and Boryung, 2008; Turner et al., 2008; Casadevall and Fang, 2012).

**Communication.** In all of these endeavors, communication is critically important in galvanizing collective thought processes toward the targeted goal. There is generally little or no onus on the part of institutions and some leaders to change institutional diversity practices as they currently exist. The federal government therefore had to use legislation in the form of affirmative action to force movement. Though controversial to many, this legal intervention led to some benefits to URMs in the face of much majority resistance, both real and perceived. It is clear that we must have open and honest dialogue built into training programs that addresses both ends of the spectrum – in terms of majority/URM perspectives. Emphasis must be placed on identifying what messages institutions, departments, and personnel are sending and what values they are promoting. In these efforts, it will be critical to control the message, be sure it is aligned with mission and values, and not contributory to development of a crisis. It is vitally important for faculty of color to be included in conversations and not be "talked about" or "talked to", but to be engaged in conversation – especially when it comes to issues which involve them. It is important for the institution, department or division to simply see an URM colleague first as a 'person' of equal worth and capacity, not only as an URM, or an inferior being. Institutional leaders should engage the URM faculty and their supervisors in open dialogue early to allow for clarity on culture, expectations, feedback, mentoring, and professional development processes and opportunities. This approach, especially if initiated during on-boarding or orientation, will begin cultivating effective professional relationships and could mitigate intrinsic bias and stereotype concerns. A proactive intervention, with the necessary accountability, will ensure clear understanding of job requirements and priorities, timelines, and alignment with promotion and tenure requirements/processes. These should also be coordinated with information shared with Search committees, and not simply rely on old descriptors or traditional practices. The processes must be legally defensible and clearly articulated in human resources and grievance policies. Of equal importance, is that URMs are aware of the rewards and incentives, advancement opportunities, fair treatment and recourse procedures, and how their roles are connected to the larger institutional mission.

**Institutional interventions, stakeholder training, and leadership.** PWIs need intentional policies to specifically deal with URM faculty retention concerns. The institutions should encourage URM faculty to establish a network of support by establishing an institutional system(s) to facilitate the identification of mentors and role models. Further, PWIs can create stakeholder training, including

specific avenues for chairs, deans and affected URM faculty to seek advice early and before a crisis develops. These avenues can be further strengthened by obtaining buy-in from senior level faculty who often have cultural and environmental 'gate-keeper' roles, whether by default or history of related transactional activities. On a more fundamental level, such institutions should seek information on potential concerns of new URM hires and of those established URM faculty in departments and initiate interventions required to accommodate persons from diverse backgrounds. PWIs must return to being recognized as problem-solving entities, thereby building the institutional relationships and leadership frameworks necessary to overcome cultural challenges, break the cycles of academic traditions, and foster sustainable growth as a result of diversifying via inclusive access and engagement of all stakeholders. Institutions should proactively and formally promote the progression of URM faculty into leadership roles to complement personal and community-based efforts for promoting URM leadership such as those introduced above. Relatedly, a limitation of the default practice of internal promotions to positions of leadership may be needed in order to break cycles of tradition, unless persons being considered have demonstrated a track record of objectivity and inclusiveness in prior roles and/or assignments.

## CONCLUSIONS

While the considerations herein are far from comprehensive, they suggest the need for change and for conversations and professional development to continue to address said issues holistically and in the context of the respective programs and institutions. The imperatives to address issues of producing top quality and competitively trained STEM graduates who will join the academy as future educators, scientists and innovators, are being compromised and severely hampered by existing URM perspectives on current academic practices. URMs at the graduate stage of their careers, and throughout the developmental progression, are able to see the difficulty with obtaining funding, the extreme competitiveness (internal or external), the challenges of getting promotion and tenure, the imbalance in workload assignments – all of these prevalent with little or no accountability on the part of the institutional leaders. Very often, navigating these issues is not based on individual talent, scholarship or productivity, but rather on numerous subjective factors, spoken and unspoken - the environmental and intrinsic personal biases. Thus, despite the prevalently promoted public persona of a meritocratic academia, URM individuals often experience this environment as a decidedly non-meritocracy (Stanley, 2006; Smith, 2013). Chairs, Deans and other administrators often ignore and/or refuse to deal with such concerns as they are likely to become contentious, and may be viewed as concerns coming from a few 'minorities' and not a consensus issue (Stanley, 2006). The decision then becomes one based on political survival, not one of fairness, objectivity or accountability - even in the face of having clearly

articulated policies. Is it then a surprise that URMs choose to leave academia for management, industry or policy jobs? If the known dysfunctions within the academic environment are not addressed, achieving widespread diversity and inclusion goals will remain elusive as simply a dream or aspiration.

Even when an URM individual is successfully recruited to a PWI environment, many institutions then relax efforts to recruit and retain additional URM faculty upon achieving a single successful hire. This person then becomes the token representative for the said department or institution, routinely saddled with multiple committee and URM student recruitment and mentoring assignments, none of which are adequately rewarded or become a major factor in performance or promotion and tenure evaluations (Turner et al., 2008). As a lone voice, whether by intent or default, the dissenting cry coming from this individual would be of limited effect (Brayboy, 2003). Such efforts have great potential to undermine official policies of diversification. In this regard, institutions routinely articulate strategies and design policies that are often aesthetic and left dormant, with no clear impetus for implementation or to engender necessary stakeholder buy-in for real and lasting institutional transformation.

The demonstrated lack of will on the part of many in leadership positions and the complexity of diversifying the academic environment and traditions are critical deterrents to URM faculty recruitment and retention. When challenged, academic leaders consistently shy away from potentially disruptive issues, such as inclusive excellence, that may likely shift the balance between empowerment and tradition. Such efforts have the impact to move the needle towards what has been described as incorporation of URMs, i.e., moving toward increased shared power leading to institutional transformation, rather than simply increasing the physical presence of these individuals (Alex-Assensoh, 2003). Regardless of the academic environment, to begin addressing retention of URM faculty personnel, open and transparent discourse must be encouraged, ideas and best practices adopted, and experimentation supported in the context of the respective environmental cultures. Clearly, the right leadership must be in place, one willing to challenge conventional wisdom and status quo traditions, and with a willingness to entice, motivate and encourage stakeholders while comfortably inviting dissent. Only with such comprehensive engagement, leadership and trust will there be recognizable and realistic achievements and impact.

## REFERENCES

- Aguire AJ (2000) Women and minority faculty in the academic workplace: Recruitment, retention, and academic culture. San Francisco, CA: Jossey-Bass.
- Alex-Assensoh Y (2003) Race in the academy: Moving beyond diversity and toward the incorporation of faculty of color in predominantly white colleges and universities. *J Black Stud* 34:5-11.
- Alexander JC, Jr. (1992) Mentoring: On the road to tenure and promotion. *ACA Bull* 79:54-58.
- Bagilhole B, Goode J (2001) The contradiction of the myth of

- individual merit, and the reality of a patriarchal support system in academic careers: A feminist investigation. *Eur J Wom Stud* 8:161-180.
- Bensimon EM, Ward K, Sanders K (2000) The department chair's role in developing new faculty into teachers and scholars. Bolton, MA: Anker Publishing Company, Inc.
- Bower GG (2007) Factors influencing the willingness to mentor 1st-year faculty in physical education departments. *Mentoring Tutoring* 15:73-85.
- Brayboy BMJ (2003) The implementation of diversity in predominantly white colleges and universities. *J Black Stud* 34:72-86.
- Casadevall A, Fang FC (2012) Reforming science: methodological and cultural reforms. *Infect Immun* 80:891-896.
- Castro J, Fenstermaker S, Mohr J, Guckenheimer D (2009) Institutional contexts for faculty leadership in diversity: a University of California-Santa Barbara case study. In: *Doing diversity in higher education: faculty leaders share challenges and strategies* (Brown-Glaude WR, ed), pp 209-230. New Brunswick, NJ: Rutgers University Press.
- Cawyer CS, Simonds C, Davis S (2002) Mentoring to facilitate socialization: the case of the new faculty member. *Int J Qual Stud Educ* 15:225-242.
- Constantine MG, Smith L, Redington RM, Owens D (2008) Racial microaggressions against black counseling and counseling psychology faculty: a central challenge in the multicultural counseling movement. *J Couns Dev* 86:348-355.
- Coon HM, Kimmelmeier M (2001) Cultural orientations in the United States: (re)examining differences among ethnic groups. *J Cross Cult Psychol* 32:348-364.
- Cora-Bramble D (2006) Minority faculty recruitment, retention and advancement: applications of a resilience-based theoretical framework. *J Health Care Poor Underserved* 17:251-255.
- Cora-Bramble D, Zhang K, Castillo-Page L (2010) Minority faculty members' resilience and academic productivity: are they related? *Acad Med* 85:1492-1498.
- Crowley S, Fuller D, Law W, McKeon D, Ramirez JJ, Trujillo KA, Widerman E (2004) Improving the climate in research and scientific training environments for members of underrepresented minorities. *Neuroscientist* 10:26-30.
- Dancy TE, Jean-Marie G (2014) Faculty of color in higher education: exploring the intersections of identity, impostorship, and internalized racism. *Mentoring Tutoring* 22:354-372.
- Diggs GA, Garrison-Wade DF, Estrada D, Galindo R (2009) Smiling faces and colored spaces: the experiences of faculty of color pursuing tenure in the academy. *Urban Rev* 41:312-333.
- Dodson JE, Montgomery BL, Brown LJ (2009) "Take the fifth": mentoring students whose cultural communities were not historically structured into U.S. higher education. *Innov High Educ* 34:185-199.
- Dowd AC, Sawatsky M, Rall RM, Bensimon, EM (2013) Action research: an essential practice for 21st century assessment at HSIs. In: *Fostering success of ethnic and racial minorities in STEM: the role of minority serving institutions* (Palmer RT, Maramba DC, Gasman M, eds), pp 149-167. New York, NY: Routledge.
- Elliott R, Strenta AC, Adair R, Matier M, Scott J (1996) The role of ethnicity in choosing and leaving science in highly selective institutions. *Res High Educ* 37:681-709.
- Figueroa T, Hurtado S (2013) Underrepresented Racial and/or Ethnic Minority (URM) graduate students in STEM disciplines: a critical approach to understanding graduate school experiences and obstacles to degree progression. Los Angeles, CA: Association for the Study of Higher Education / University of California, Los Angeles.
- Gaines SO, Jr., Marelich WD, Bledsoe KL, Steers WN, Henderson MC, Granrose CS, Barajas L, Hicks D, Lyde M, Takahashi Y, Yum N, Rios DI, Garcia BF, Farris KR, Page MS (1997) Links between race/ethnicity and cultural values as mediated by racial/ethnic identity and moderated by gender. *J Pers Soc Psychol* 72:1460-1476.
- Garibay JC (2013) Achieving equity within and beyond STEM: toward a new generation of scholarship in STEM education. In: *Fostering success of ethnic and racial minorities in STEM: the role of minority serving institutions* (Palmer RT, Maramba DC, Gasman M, eds), pp 209-220. New York, NY: Routledge.
- Gasman M (2010) Bolstering African-American success in the STEM fields. *Chronicle of Higher Education*.
- Gilligan MR, Verity PG, Cook CB, Cook SB, Booth MG, Frischer ME (2007) Building a diverse and innovative ocean workforce through collaboration and partnerships that integrate research and education: HBCUs and Marine Laboratories. *J Geosci Educ* 55:531-540.
- Ginther DK, Schaffer WT, Schnell J, Masimore B, Liu F, Haak LL, Kington R (2011) Race, ethnicity, and NIH research awards. *Science* 19:1015-1019.
- Girves JE, Zepeda Y, Gwathmey JK (2005) Mentoring in a post-affirmative action world. *J Soc Issues* 61:449-479.
- Harper SR (2010) An anti-deficit achievement framework for research on students of color in STEM. *New Dir Inst Res* 2010:63-74.
- Harper SR (2012) Race without racism: how higher education researchers minimize racist institutional norms. *Rev High Ed* 36:9-29.
- Hayes TB (2010) Diversifying the biological sciences: Past efforts and future challenges. *Mol Biol Cell* 21:3767-3769.
- Humes KR, Jones NA, Ramirez RR (2011) Overview of race and Hispanic origin: 2010. Washington, DC: U.S. Department of Commerce, Economics, and Statistics Administration, U.S. Census Bureau.
- Hurtado S, Eagan MK, Tran MC, Newman CB, Chang MJ, Velasco P (2011) "We do science here": underrepresented students' interactions with faculty in different college contexts. *J Soc Issues* 67:553-579.
- Hurtado S, Griffin KA, Arellano L, Cuellar M (2008) Assessing the value of climate assessments: progress and future directions. *J Divers High Educ* 1:204-221.
- Hurtado S, Milem JF, Clayton-Pedersen AR, Allen WR (1998) Enhancing campus climates for racial/ethnic diversity: educational policy and practice. *Rev High Educ* 21:279-302.
- King SE, Chepyator-Thomson J (1996) Factors affecting the enrollment and persistence of African-American doctoral students. *Phys Educ* 53:170-180.
- Laden BV, Hagedorn LS (2000) Job satisfaction among faculty of color in academe: Individual survivors or institutional transformers? *New Dir Inst Res* 105:57-66.
- Leboy PS, Madden JF (2012) Limitations on diversity in basic science departments. *DNA Cell Biol* 31:1365-1371.
- Lette B (2006, June 6) What is critical mass theory, and why does it matter? *Law and Letters*. Retrieved from [http://lawandletters.blogspot.com/2006/06/what-is-critical-mass-theory-and-why\\_06.html](http://lawandletters.blogspot.com/2006/06/what-is-critical-mass-theory-and-why_06.html).
- Lim RF, Luo JS, Suo S, Hales RE (2008) Diversity initiatives in academic psychiatry: applying cultural competence. *Acad Psychiatry* 32:283-290.
- Merchant JL, Omary MB (2010) Underrepresentation of underrepresented minorities in academic medicine: the need to enhance the pipeline and the pipe. *Gastroenterology* 138:19-26.
- Montgomery BL, Dodson JE, Johnson SM (2014) Guiding the way: mentoring graduate students and junior faculty for sustainable academic careers. *SAGE Open* 4: 10.1177/2158244014558043.
- Moody J (2004) Faculty diversity: problems and solutions. *New*

- York, NY: Routledge.
- Moreno JF, Smith DG, Clayton-Pedersen AR, Parker S, Teraguchi DR (2006) The revolving door for underrepresented minority faculty in higher education: an analysis from the Campus Diversity Initiative. San Francisco, CA: The James Irvine Foundation.
- Moss-Racusin CA, Dovidio JF, Brescoll VL, Graham MJ, Handelsman J (2012) Science faculty's subtle gender biases favor male students. *Proc Natl Acad Sci U S A* 109:16474-16479.
- National Academy of Sciences (2011) Expanding underrepresented minority participation. Washington, DC: National Academies Press.
- National Research Council (2011) Expanding underrepresented minority participation: America's science and technology talent at the crossroads. Washington, DC: The National Academies Press.
- National Science Foundation (2012) Women, minorities, and persons with disabilities in science and engineering: data tables, [www.nsf.gov/statistics/wmpd/tables.cfm](http://www.nsf.gov/statistics/wmpd/tables.cfm) (accessed 1 March 2015).
- Noy S, Ray R (2012) Graduate students' perspectives of their advisors: is there systematic disadvantage in mentorship? *J High Educ* 10:1-39.
- O'Rourke S (2008, September 26). Diversity and merit: how one university rewards faculty work that promotes equity. *The Chronicle of Higher Education*. Retrieved from <http://chronicle.com/article/We-Need-to-Reward-Those-Who/126591>.
- Padilla RV, Treviño J, Treviño J, Gonzalez K (1997) Developing local models of minority student success in college. *J Coll Stud Dev* 38:125-135.
- Page OC (2003) Promoting diversity in academic leadership. *New Dir High Educ* 124:79-86.
- Page S (2007) *The difference – how the power of diversity creates better groups, firms, schools and societies*. Princeton, NJ: Princeton University Press.
- President's Council of Advisors on Science and Technology (2012) Engage to excel: producing one million additional college graduates with degrees in science, technology, engineering, and mathematics. Executive Office of the President.
- Price EG, Gozu A, Kern DE, Powe NR, Wand GS, Golden S, Cooper LA (2005) The role of cultural diversity climate in recruitment, promotion, and retention of faculty in academic medicine. *J Gen Intern Med* 20:565-571.
- Rankins C, Rankins F, Inniss T (2014) Who is minding the gap? *Peer Review* 16(2). Retrieved from <http://www.aacu.org/peerreview/pr-sp14/Rankins.cfm>
- Rockquemore KA, Laszloffy T (2008) *The Black academic's guide to winning tenure without losing your soul*. Boulder, CO: Lynne Rienner Publishers.
- Rogers E (2003). *Diffusion of innovations*. New York, NY: Simon and Schuster.
- Seonghee K, Boryung J (2008) An analysis of faculty perceptions: attitudes toward knowledge sharing and collaboration in an academic institution. *Libr Inf Sci Res* 30:282-290.
- Sethna BN (2011) Minorities in higher education: a pipeline problem? *Res High Educ J* 13:1-18.
- Smith A (2013) Life after tenure denial. In: *Mentoring faculty of color: essays on professional development and advancement in colleges and universities* (Mack D, Watson ED, Camacho MM, eds), pp 195-204. Jefferson, NC: McFarland & Company, Inc.
- Smith JW, Calasanti T (2005) The influences of gender, race and ethnicity on workplace experiences of institutional and social isolation: an exploratory study of university faculty. *Sociol Spectr* 25:307-334.
- Smith JL, Cech E, Metz A, Huntoon M, Moyer C (2014) Giving back or giving up: Native American student experiences in science and engineering. *Cultur Divers Ethnic Minor Psychol* 20:413-429.
- Smith WA, Hung M, Franklin JD (2011) Racial battle fatigue and the miseducation of black men: racial microaggressions, societal problems, and environmental stress. *J Negro Educ* 80:63-82.
- Sorcinielli MD, Yun J (2007) From mentor to mentoring networks: Mentoring in the new academy. *Change* 39:58-61.
- Stanley CA (2006) Coloring the academic landscape: faculty of color breaking the silence in predominantly white colleges and universities. *Am Educ Res J* 43:701-736.
- Su R, Rounds J, Armstrong PI (2009) Men and things, women and people: a meta-analysis of sex differences in interests. *Psychol Bull* 135:859-884.
- Thoman DB, Brown ER, Mason AZ, Harmsen AG, Smith JL (2014) The role of altruistic values in motivating underrepresented minority students for biomedicine. *BioScience* doi: 10.1093/biosci/biu199.
- Thompson NL, Campbell AG (2013) Addressing the challenge of diversity in the graduate ranks: good practices yield good outcomes. *CBE Life Sci Educ* 12:19–29.
- Tillman LC (2001) Mentoring African American faculty in predominantly white institutions. *Res High Educ* 42:295-325.
- Turner C (2002) *Diversifying the faculty: a guidebook for search committees*. Washington, DC: Association of American Colleges & Universities.
- Turner CSV, González JC (2015) What does the literature tell us about mentoring across race/ethnicity and gender. In: *Modeling mentoring across race/ethnicity and gender: practices to cultivate the next generation of diverse faculty* (Turner CSV and González JC, eds), pp 1-41. Sterling, VA: Stylus Publishing.
- Turner CSV, González JC, Wood JL (2008) Faculty of color in academe: what 20 years of literature tells us. *J Divers High Educ* 1:139-168.
- U.S. Congress Joint Economic Committee (2012) *STEM education: preparing for the jobs of the future*. Washington, D.C.: Joint Economic Committee Chairman's Staff, Senator Bob Casey, Chairman. Retrieved from [http://www.jec.senate.gov/public/index.cfm?p=Reports1&ContentRecord\\_id=92c8daf4-47c8-416a-bfa4-984cc8b6525a](http://www.jec.senate.gov/public/index.cfm?p=Reports1&ContentRecord_id=92c8daf4-47c8-416a-bfa4-984cc8b6525a).
- U.S. Department of Education, National Center for Education Statistics (2012) The condition of education 2012 (NCES 2012-045, Indicator 47). Retrieved from <http://nces.ed.gov/fastfacts/display.asp?id=72>
- U.S. Department of Education, National Center for Education Statistics (2013) Full-time instructional faculty in degree-granting postsecondary institutions, by race/ethnicity, sex, and academic rank: Fall 2007, fall 2009, and fall 2011. Retrieved from [http://nces.ed.gov/programs/digest/d13/tables/dt13\\_315.20.asp](http://nces.ed.gov/programs/digest/d13/tables/dt13_315.20.asp)
- Wadia-Fascetti S, Leventman PG (2000) E-Mentoring: a longitudinal approach to mentoring relationships for women pursuing technical careers. *J Eng Educ* 89:295-300.
- Wall CA (2009) Faculty as change agents-reflections on my academic life. In: *Doing diversity in higher education: faculty leaders share challenges and strategies* (Brown-Glaude WR, ed), pp ix-xiv. New Brunswick, NJ: Rutgers University Press.
- Whittaker JA, Akers TA (2009) Establishing a new paradigm for diversity: a case for restructuring the academic training environment. *J Undergrad Neurosci Educ* 8:A82-A85.
- Whittaker JA, Montgomery BL (2012) Cultivating diversity and competency in STEM: challenges and remedies for removing virtual barriers to constructing diverse higher education communities of success. *J Undergrad Neurosci Educ* 11: A44-A51.

- Whittaker JA, Montgomery BL (2014) Cultivating institutional transformation and sustainable STEM diversity in higher education through integrative faculty development. *Innov High Educ* 39:263-275.
- Williams LD (2001) Coming to terms with being a young, Black female academic in U.S. higher education. In: *Sisters of the academy: emergent Black women scholars in higher education* (Mabokela RO, Green AL, eds), pp 93-102. Sterling, VA: Stylus.
- Williams JE, Wake C, Hayden L, Abrams E, Hurtt G, Rock B, Graham K, Hale S, Porter W, Blackmon R, LeCompte M, Johnson D (2011) Building a model of collaboration between historically Black and historically White universities. *J High Educ Outreach Engagem* 15:35-55.
- Woods RL (2001) Invisible women: the experiences of Black female doctoral students at the University of Michigan. In: *Sisters of the academy: emergent Black women scholars in higher education* (Mabokela RO, Green AL, eds), pp 105-115. Sterling, VA: Stylus.
- Wunsch MA, Chattergy V (1991) Managing diversity through faculty development. *To Improve the Academy* 10:141-150.
- Zambrana RE, Ray R, Espino MM, Castro C, Cohen BD, Eliason J (2015) "Don't leave us behind": the importance of mentoring for underrepresented minority faculty. *Am Educ Res J* 52:40-72.
- Zusman A (2005) Challenges facing higher education in the twenty-first century. In: *American higher education in the twenty-first century: social, political, and economic challenges*, 2nd ed (Altbach PG, Berdahl RO, Gumpert PJ, eds), pp 115-160. Baltimore, MD: The Johns Hopkins University Press.

Received March 09, 2015; revised May 06, 2015; accepted May 06, 2015.

JA Whittaker is supported by National Science Foundation (grant HRD-1036314); BL Montgomery is supported by the National Science Foundation (grant no. MCB-1243983 and MCB-1241970); and VG Martinez Acosta is supported by the Department of Defense (grant no. W911NF-13-1-0164) and by an NSF MRI grant (Co-PI; grant no.: 1229702).

Address correspondence to: Joseph A. Whittaker, Ph.D., Morgan State University, Dixon Research Building, Room 012, 1700 E. Cold Spring Lane, Baltimore, Maryland 21251. Email: joseph.whittaker@morgan.edu

Copyright © 2015 Faculty for Undergraduate Neuroscience  
www.funjournal.org