

**Faculty Appointment, Promotion and Tenure Award Procedure Guidelines
Heersink School of Medicine – Tenure Track and Non-tenure Track**

1. Faculty Appointments

Ranks and Criteria

University of Alabama Heersink SOM faculty members are appointed into one of three tracks. The Tenure-earning (TE) and Non-tenure earning tracks (NTE) are reserved for those faculty who have a full- or part-time regular appointment at the University of Alabama at Birmingham (UAB). These tracks (outlined in Table A) provide the flexibility required for recognizing the contributions made by every researcher, educator, and clinician across UAB Medicine.

Table A. Appointment Tracks of the Heersink SOM

	Tenure-Earning Track	Non-tenure Earning Track
Eligibility	Faculty of the Heersink SOM	Faculty of the Heersink SOM
Faculty Appointment Rank (Titles)		Instructor
	Assistant Professor	Assistant Professor
	Associate Professor	Associate Professor
	Professor	Professor
Areas of Excellence for Promotion Above Assistant Professor	Research	Research
	Teaching	Teaching
	Service	Service
Numbers of Areas of Excellence Required for Promotion Above Assistant Professor	Two	One
Minimum Level of Recognition/Reputation Required for Promotion Above Assistant Professor	National	National
Eligible for Tenure	Yes	No

Criteria for appointment include contributions in the areas of research, teaching, or service. All Heersink SOM faculty members are expected to be engaged in scholarly activities that support these efforts in ways that are consistent with their unique roles and faculty track. Importantly, however, at the time of their initial appointment there is an expectation of excellence (or an expectation of the potential for excellence) for faculty in these areas. Individuals appointed in the TE track are expected to demonstrate excellence or potential for excellence in at least two areas; those in the NTE track are expected to demonstrate excellence or potential for excellence in one area designated in their respective tracks. Faculty appointed at UAB as full-time regular or part-time regular must be appointed to the tenure-earning or non-tenure earning tracks. For information regarding UAB guidelines please see the [UAB Faculty Handbook](#)

Instructor, Non-tenure Earning Track

Appointments to the rank of Instructor are non-tenure earning and typically require a doctorate-level degree. In the rare circumstance a department proposes hiring a candidate without a terminal degree, a justification of need must be submitted to the HSOM Dean's Office to request pre-approval. These appointments are generally for one year and are renewable.

Assistant Professor, Tenure Earning or Non-tenure Earning Tracks

Appointments to this rank usually require the following:

- Two or more years' experience following receipt of doctorate-level degree
- Academic credentials and demonstration of level of specialized accomplishment appropriate to the mission of the Department and the School
- An expectation of collegiality and participation in service in the Department and/or School
- Demonstration of potential for scholarship in the areas of research, teaching, or service

Associate Professor, Tenure Earning or Non-tenure Earning Tracks

Appointments to this rank usually require the following:

- Five or more years in the rank of Assistant Professor
- Academic credentials and demonstration of level of specialized accomplishment appropriate to the mission of the Department and the School
- Demonstration of collegiality and participation in the Department and/or School
- Evidence of excellence in scholarly achievement in the areas of research, teaching, and/or service
- Demonstration of national peer recognition in the conduct of scholarly activities

Professor, Tenure Earning or Non-tenure Earning Tracks

Appointments to this rank usually require the following:

- Distinguished performance as an Associate Professor with at least 5 years in that rank
- Academic credentials and demonstration of level of specialized accomplishment appropriate to the mission of the Department and the School
- Demonstration of collegiality, involvement, and leadership as a citizen of the Department and/or School
- Evidence of sustained excellence in scholarly achievement and productivity in the areas of research, teaching, and/or service

- Demonstration of national peer recognition in the conduct of scholarly activities

2. Heersink SOM Promotion Standards

Faculty member contributions to activities in the areas of research, teaching, and service are evaluated for promotion and the award of tenure. All faculty members are expected to be engaged in scholarly activities that support the areas of research, teaching, and service in ways that are consistent with their unique roles and faculty promotion tracks. Further, to attain promotion or the award of tenure, faculty are expected to demonstrate sustained excellence in the mission areas appropriate to their professional roles. For faculty in the TE and NTE tracks, this excellence is closely related to scholarship that includes national peer review of other scholars. Individuals being promoted in the TE track are expected to demonstrate excellence in at least two areas designated in the TE track; those being promoted in the NTE track are expected to demonstrate excellence in any one area designated in their respective tracks (Table A). While promotion is based upon achieving excellence in two or one area(s), all faculty members are encouraged to contribute to other mission areas of the Heersink SOM.

Assistant Professor, Tenure Earning or Non-tenure Earning Tracks

Promotion to this rank usually requires the following:

- Two or more years of work experience following receipt of doctorate level degree
- Academic credentials and demonstration of level of specialized accomplishment appropriate to the mission of the department and the Heersink SOM.
- An expectation of collegiality and participation in service in the department and/or Heersink SOM.
- Demonstration of potential for contributions in the areas of research, teaching, or service.

Associate Professor, Tenure Earning or Non-tenure Earning Tracks

Promotion to this rank usually requires the following:

- Five or more years in the rank of Assistant Professor
- Academic credentials and demonstration of level of specialized accomplishment appropriate to the mission of the department and the Heersink SOM.
- Demonstration of collegiality and involvement in the department and/or Heersink SOM.
- Evidence of excellence in scholarly achievement in the areas of research, teaching, and/or service
- Demonstration of national peer recognition in the conduct of scholarly activities

Professor, Tenure Earning or Non-tenure Earning Tracks

Promotion to this rank usually requires the following:

- Distinguished performance as an Associate Professor, with at least 5 years in rank
- Demonstration of collegiality, involvement, and leadership as a citizen of the Department and/or Heersink SOM
- Evidence of sustained excellence in scholarship and productivity in the areas of research, teaching, and/or service
- Demonstration of national peer recognition in the conduct of scholarly activities

Note: The requirements above regarding five or more years in rank for promotion to the Associate Professor-level or Professor-level applies to faculty hired on or after October 1, 2023.

All faculty hired prior to October 1, 2023, must have three or more years in current rank for promotion to Associate Professor or Professor.

3. Examples of Excellence in Areas of Faculty Activity

Examples of activities consistent with the above guidelines for each of the three areas are provided below. These are not meant to be comprehensive and all-inclusive listings, but rather to provide examples of what constitutes excellence in each of the areas. A faculty member can be recognized as achieving excellence through a combination of activities listed in each area. Additionally, it is recognized that some activities may be classified into more than one category of activity. Finally, the various individuals and faculty peer review groups may consider additional accomplishments in their judgement of the excellence of a particular faculty member being considered for promotion or tenure.

Research (Associate Professor)

- Demonstration of initiative and independence in research activities in basic or translational science, clinical outcomes, quality improvement or population-based research.
- Evidence of research independence includes but is not limited to receipt of one or more substantial extramural grants (e.g., PI of non-mentored extramural funding at a R01-equivalent level).
- Publication of independent research findings and scholarly papers in peer reviewed journals. (Publications as first, senior or corresponding author is regarded as stronger evidence of research independence.)
- Obtaining grants and/or contracts for support of research.
- Presentation of research and other scholarly findings at scientific and professional meetings. Service on thesis or dissertation committees.

Research (Professor)

- Sustained and outstanding performance in the examples cited for the associate professor level
- Serving as mentor, co-author, or senior author of student or resident presentations at local, regional, or national meetings
- Receipt of invitations to preside over sessions at national or international scientific meetings
- Participation in external review committees, study sections, or service as editor of scientific or professional journals or textbooks
- Receipt of recognition of excellence in research by professional or scientific institutions or organizations

Teaching (Associate Professor)

- Demonstration of mastery of content and method, documented by student, resident, postdoctoral fellow, and/or peer evaluation (All teaching activities should receive consideration.)
- Taking responsibility for the design, organization, coordination, and evaluation of an educational program

- Developing and/or presenting effective continuing education or other professional programs, including invited presentations
- Providing effective supervision, guidance, and/or counseling to trainees, including graduate students, postdoctoral fellows, and/or house officers
- Participation in educational program planning and general curricular activities
- Publication of papers and/or presentations at professional meetings on topics related to education
- Demonstration of innovation in teaching methods and production of texts, educational software or courseware
- Receipt of recognition as an exemplary scientist or clinician whose mentoring and teaching activities provide an outstanding role model for students
- Serving as principal investigator on grants or contracts for educational projects

Teaching (Professor)

- Sustained and outstanding performance in the examples cited for the associate professor level
- Leadership through design, organization, coordination, and evaluation of educational programs
- Administrative responsibility at the school or departmental level for curriculum
- Leadership in continuing education or other professional programs; invitations as visiting professor at other institutions
- Supervision of staff teaching within a course, division, department, or within the school
- Sustained productivity in publication of papers and/or presentations at professional meetings on topics related to education
- Sustained innovation and leadership in production of texts, educational software, or courseware
- Record of sustained ability to maintain external funding to support innovative educational projects
- Sustained recognition as an exemplary scientist, teacher or clinician whose activities provide an outstanding role model for students

Service (Associate Professor)

- Providing measurably excellent clinical productivity and exemplary patient care
- Providing demonstrable leadership or initiative in administrative or committee roles that augment the missions of the Department and/or Heersink SOM in clinical care, research, and/or education such as originality in problem solving, authorship of guidelines or quality reports and policies
- Providing staff responsibility for a service or specific area of patient care
- Providing demonstrable leadership in quality improvement/assurance or patient safety initiatives
- Serving as critical member or director of a research core laboratory
- Serving on the UAB Faculty Senate
- Serving as editor of a journal
- Serving on a grant review committee
- Serving on graduate student committees (e.g., thesis committee)

- Serving on national committees that serve to set guidelines/recommendations for research (e.g., NIH committees, professional societies)
- Serving on committees with the department, school, university and/or affiliated institutions
- Engaging in mentoring junior faculty colleagues
- Serving on committees to develop clinical practice guidelines or to formulate healthcare policies
- Providing service to the professional or lay community through education, consultation or other roles
- Participation as a key member of a large research team(s), proving documented critical scientific contribution(s) or serving in a significant role in the research (“team science” contributions)

Service (Professor)

- Continued demonstration of excellence of measurably excellent clinical productivity and exemplary patient care.
- Serving on committees with the department, school, university and/or affiliated institutions
- Serving on the UAB Faculty Senate
- Serving on committees to develop clinical practice guidelines or to formulate healthcare policies
- Providing service to the professional or lay community through education, consultation or other roles
- Sustained exemplary leadership in administrative committee roles that augment the missions of the Department and/or Heersink SOM in clinical care, research and/or education such as originality in problem solving, authorship of guidelines or quality reports and policies
- Providing sustained responsibility for a service or specific area of patient care or clinical teaching
- Sustained excellence in the leadership of quality improvement/assurance or patient safety initiatives
- Recognition as an authority by other schools and departments within UAB and by local, state, regional and national organizations or institutions
- Appointment to responsible position(s) within the institution or its affiliates (e.g., chairs a committee, department, or division; membership on major Department or Heersink SOM committees)
- Extensive and excellent mentorship of faculty colleagues
- Continued service on committees to develop clinical practice guidelines or to formulate regional or national healthcare policies
- Election to responsible positions on civic boards or organizations concerned with health care issues at the local, state, regional, national, or international levels

4. Heersink SOM Tenure Guidelines

The awarding of tenure is a serious and significant step for both the faculty member and the Heersink SOM. Tenure is awarded to individual faculty members upon evidence of the capacity

and likelihood for continued intellectual, scholarly, and professional vitality; upon evidence of the ability and willingness to perform assigned duties; and upon evidence of a sense of responsibility and dedication to make the continuing exemplary performance of duties a reasonable expectation. Tenure is not awarded merely on the basis of time in service.

Any faculty member appointed to a tenure-earning faculty position shall have a maximum of ten years to earn tenure. This period will begin on the first day of October after the appointment on the tenure-earning track. If tenure has not been awarded during or before the ninth year on the tenure-earning track, the appointment for the final year shall be a terminal appointment. To qualify for consideration of tenure during the terminal year, the individual must have been considered for tenure prior to the terminal year. Therefore, a packet requesting tenure must be submitted and ruled upon for all faculty members in or before their ninth year on TE track. Only in cases in which there is substantial new evidence in support of candidacy for tenure may a candidate be considered for tenure during the terminal year (see section 2.15.9 of the UAB Faculty Handbook). This review shall serve as the primary basis upon which to determine whether substantial new evidence is apparent. Each level of review (departmental committee, if applicable, school committee, Dean, and Provost) must make this determination. Faculty members on the TE track who are not awarded tenure at the review during the ninth year will receive a one-year notice of termination unless they transfer to the NTE track or gain tenure in the tenth year.

Note that promotion and tenure may be sought at the same time or may be sought separately. Tenure-earning Assistant Professors often simultaneously seek promotion along with the award of tenure. However, a tenure-earning Assistant Professor may seek promotion prior to application for the award of tenure but may not apply for tenure without promotion. In all cases, the Faculty Council decides on the award of tenure separately from the decision on appointment or promotion. Criteria for granting tenure include the following:

- Achievement of rank of at least Associate Professor on the TE track.
- Academic credentials consistent with the missions of the department and the Heersink SOM.
- National reputation reflected by peer recognition, presentations at national professional meetings, and productivity in published works.
- Evidence of strong institutional citizenship, manifest as effective participation in service activities, mentoring of more junior colleagues, support of university missions and values, collegiality, and leadership initiative.
- Evidence of sustained, significant scholarship in at least two of the following three areas: research, teaching, and service.

Individuals appointed to faculty positions at UAB may be appointed to the tenure-earning faculty only once during a period of continuous employment at UAB. That is, with appropriate approval, individuals initially appointed to the tenure-earning faculty may later be appointed to the non-tenure-earning faculty, but they may not subsequently return to the tenure-earning faculty in that position during a period of continuous employment. They may seek appointment to a different position at UAB, which may be tenure-earning, tenured, or non-tenure-earning, if selected through national level recruitment. Individuals initially appointed to the non-tenure-earning faculty may later be appointed to the tenure-earning faculty position provided that the search

under which he or she is selected is for a tenure-earning faculty position. When appropriate, these individuals could then return to the non-tenure-earning faculty. Appointment change from a tenure-earning to a non-tenure-earning faculty position requires notification of the faculty member whose status is to change and the approval of his/her Chair, the Dean, and the Provost. Similarly, an appointment change from the non-tenure track to the academic clinician track, or vice versa, requires approval from the department Chair, Dean, and Provost, but is not subject to a restriction on the number of times such a change can be sought.

For additional information, please refer to the [UAB Faculty Handbook](#).

5. Promotion/Tenure Process for Tenure-earning Track and Non-tenure Track

Promotions involving the ranks of Instructor to Assistant Professor only require review and approval by the Dean(s) and the Provost. As such, these proposals may be submitted at this time or anytime throughout the year.

Promotions to the rank of Associate Professor or Professor (TE or NTE), and the award of tenure require review by the Faculty Council. The Faculty Council meets once per academic year to deliberate on promotion and tenure packets. This meeting generally occurs in May so that approved packets may be advanced from the Dean's Office to the Provost's Office for final approval in time for the promotion and/or award of tenure to be effective on October 1 of the same year. Time at rank is counted toward promotion starting the date hired to the current rank. The tenure-earning period shall be determined by the date of appointment if it is October 1. If the appointment date comes after October 1, the October 1 which next follows the initial date of appointment to a tenure-earning position shall determine the start of the tenure-earning period.

In order to provide faculty time to prepare their packets and department APT committees time to deliberate and advance these to the Faculty Council, the overall process for individual faculty members generally starts the fall prior to the May Faculty Council meeting. Written notification from the Dean is distributed to Department Chairs/administrators to begin the process for the upcoming promotion/tenure award cycle and includes the calendar with specific dates of deadlines for completion of key tasks in advance of Faculty Council review.

Departments/divisions shall prepare promotion and/or tenure award proposals as outlined in the Heersink SOM instructions. These proposals require review and approval or denial by the Department Appointment, Promotion and Tenure committee prior to submission for review and consideration by the Faculty Council. Deadlines for review by departmental committees are set by each department.

Following the Faculty Council meeting, the Faculty Council Chair or Vice-Chair will contact faculty members and Department Chairs regarding any candidates whose applications were disapproved. The faculty member may then request a reconsideration of the Faculty Council recommendation at a special meeting that occurs generally in June and includes another Faculty Council vote. Once the second vote is complete, the Faculty Council's recommendations will be sent to the Dean for approval. Letters will be sent notifying Department Chairs of the Dean's approval. Individual faculty members will be notified if the Dean's decision is a denial and will be advised of their rights to appeal using the process described in Section 2.17 of the [UAB Faculty Handbook](#).

The Dean then submits recommendations for approval of promotions and/or awards of tenure to the Provost. The Provost and/or President's Office provides notification to the Dean regarding approval of Schools of Medicine faculty promotion and/or tenure award proposals. Approved proposals are then forwarded to Personnel Records. Proposals denied at this level are returned to the Heersink SOM Dean's Office for appropriate action and/or follow-up as necessary. The President, Provost or Dean then notifies the Department Chairs and faculty regarding final approval of promotion and/or tenure award proposals.

6. Faculty Council for Tenure-track and Non-tenure Track

The Faculty Council will serve as the Heersink SOM Appointment, Promotion, and Tenure Committee. In this capacity, the Faculty Council will make recommendations to the Dean on the merits of appointment, promotion, and tenure of individual Heersink SOM faculty members. The Faculty Council will review and approve/disapprove the initial appointment of all incoming faculty members of the Heersink SOM at the level of Associate Professor and Professor in the TE or NTE track and those faculty appointments that include the award of tenure. Additionally, the Faculty Council will review and approve/disapprove all applications for promotion to these same ranks in the TE and NTE tracks as well as applications for the award of tenure.

The Faculty Council shall consist of twenty-seven (27) faculty members with a part or full-time appointment to UAB. Nineteen (19) members are elected by the faculty and the Dean shall appoint eight (8) members. The Dean of Faculty Affairs will serve as an ex officio, non-voting member and provide guidance and oversight to the council. Efforts should be undertaken to ensure diversity and inclusion in membership of the Faculty Council. Department Chairs and faculty with Dean appointments may not serve as members. The Dean shall invite nominees for the elected positions and will construct a ballot of eligible faculty for distribution to and election by all UAB regular faculty members. The Faculty Council will recommend a Chair and Vice-Chair, who then must be appointed by the Dean. These individuals must have previously served as a regular member of the Faculty Council for at least one three-year term. This prior service may have occurred in an earlier appointment to the Faculty Council. The term of service for the Chair and Vice-Chair is three years. With the endorsement of the Faculty Council membership and the approval of the Dean, the Vice-Chair will become the Chair at the completion of the Chair's 3-year term, and then will serve one 3-year term as Chair. A new Vice-Chair then will be selected. The individual selected as the Vice-Chair should alternately be from a Joint Health Sciences and Clinical Department, so that the Chair is from a Clinical Department and the Vice-Chair is from a Joint Health Sciences department, or vice versa. Terms of appointment for Faculty Council members are three (3) years with one possible three (3) year renewal. The term of the Vice-Chair shall be extended so that they may serve one term as Chair. It is the responsibility of the Faculty Council to review each application applying the standards described previously.

Faculty Council members may vote on appointment, promotion, and tenure candidates as follows:

- Only tenured committee members, regardless of rank, may vote on initial appointments with tenure and awards of tenure.

- Only committee members at or above the rank to which the faculty member under consideration is to be appointed or promoted may vote on such actions.
- Committee members must recuse themselves from Faculty Council discussions or votes of any individual where the member has a conflict of interest.

7. Scholarship Defined

Heersink SOM has a multifaceted mission that includes providing healthcare, conducting research, applying new knowledge to improve healthcare and delivery, and educating healthcare providers, masters and doctoral level students, etc. This mission requires the commitment of a diverse faculty who are engaged in a full range of scholarly activities. As articulated in contemporary conceptualizations of scholarship, this range of activities includes the scholarship of discovery, application, teaching, and integration. The scholarship of discovery, teaching, and application relates directly to the Heersink SOM's major missions in research, teaching, and service. The scholarship of integration is related to all three areas and should be considered relative to contributions in the three primary areas.

While overlap may exist, a distinction exists between scholarly activity and scholarship. For example, delivering a good lecture in a medical school course is expected of a faculty member and is an example of scholarly activity. To qualify as scholarship in teaching, it is expected that the faculty member publicly disseminates the development of new courses, curriculum, and/or approach to teaching through publication or website posting. In service, a distinction can be made between one faculty member who provides competent clinical care and another who is viewed as an authority in a specific area of clinical medicine. Scholarly activity in research includes delivery of scientific presentation at regional, national, and international meetings or universities. Scholarship in research is achieved through peer reviewed publication of newly developed techniques, methods, or novel scientific discoveries. Application of the same method in support of the research mission of the Heersink SOM might be an example of scholarship in service if this method was judged by the faculty member's peers to be integrally important to the research mission.

Provided below is articulation of Scholarship at Heersink SOM, which is derived from an expanded view of scholarship set forth in Dr. Ernest L. Boyer's book *Scholarship Reconsidered* (Glassick, C.E., Huber, M.T., Maeroff, G.L., Scholarship Assessed: Evaluation of the Professoriate. Carnegie Foundation for the Advancement of Teaching, 1997.). It is hoped that this statement will inform both the career development of faculty at Heersink SOM and the process of making decisions regarding appointments, promotion, and tenure. Boyer's expanded view of scholarship includes the following:

Scholarship of Discovery

“... the scholarship of discovery... comes closest to what is meant when academics speak of “research.” No tenets in the academy are held in higher regard than the commitment to knowledge for its own sake, to freedom in inquiry and to following, in a disciplined fashion, an investigation wherever it may lead... Scholarly investigation... is at the very heart of academic life, and the pursuit of knowledge must be assiduously cultivated and defended.”

Scholarship of Teaching

“When defined as scholarship... teaching both educates and entices future scholars. As a scholarly enterprise, teaching begins with what the teacher knows... Teaching is also a dynamic endeavor involving all the analogies, metaphors, and images that build bridges between the teacher’s understanding and the student’s learning... Further, good teaching means that faculty, as scholars are also learners... In the end, inspired teaching keeps the flame of scholarship alive... Without the teaching function, the continuity of knowledge will be broken and the store of human knowledge dangerously diminished.”

Scholarship of Application

“The third element, the application of knowledge, moves toward engagement as the scholar asks, ‘How can knowledge be responsibly applied to consequential problems? How can it be helpful to individuals as well as to institutions?’... To be considered scholarship, service activities must be tied directly to one’s special field of knowledge and relate to, and flow directly out of, this professional activity. Such service is serious, demanding work, requiring the rigor – and the accountability – traditionally associated with research activities.”

Scholarship of Integration

“By integration, we mean making connections across the disciplines, placing the specialties in larger context, illuminating data in a revealing way, often educating non-specialists, too... Today, interdisciplinary and integrative studies, long on the edges of academic life, are moving toward the center, responding both to new intellectual questions and to pressing human problems. As the boundaries of human knowledge are being dramatically reshaped, the academy surely must give increased attention to the scholarship of integration.”

Some examples consistent with national recognition:

- Peer-reviewed manuscripts relevant to area of excellence
- Participation in NIH or other extramural, national grant study sections
- Editorial Board membership
- Curriculum Disseminated or Implemented Nationally
- Invited lectures
- Participation in committees or task forces for Scientific Societies, NIH, etc.
- Podcasts, online videos etc. (if you can document viewership and the location of views)
- Patients (travelling from out of state for treatment)
- External letters that state the promotion candidate would qualify for promotion at the external reference's home institution.
- Participation in national advisory boards or guideline panels
- National Board Examiner or question writer

Examples for Evaluating Teaching, Scholarly, Academic, and Clinical Activities

Teaching Activities (include but are not limited to):

1. Teaching of students, post-graduate students, or residents in the classroom, laboratory, clinical setting, or other specific area of expertise (this includes continuing education)
2. Direction of graduate research
3. Curriculum development which includes development of objectives, materials, and methods of evaluation
4. Student, resident, or fellow advising and counseling
5. Student, resident, or fellow recruiting
6. Facilitation of teaching efforts of the faculty, i.e. helping to assess the value of teaching objectives, or methods of evaluation, providing content material for courses of study
7. Serving as a member of education, curriculum, or admissions committees
8. Efforts to improve personal teaching skills

Evidence supporting or evaluating teaching efforts must come from student/resident/fellow evaluations, teaching awards, recognition by faculty, or professional organizations. Objective evidence regarding the quality of teaching must be included in a candidate's proposal for appointment, promotion and/or tenure award and should include the following:

1. Faculty evaluations of the objectives, methods and materials of courses that have been designed and taught by the individual
2. Summarize student/resident/fellow reviews of the individual's performance. A summary table documenting all courses taught with summary scores is one way to present information.
3. Evaluations of teaching effectiveness by faculty who have taught with the individual or have observed the individual's teaching skill
4. Evaluations concerning the performance of students, residents, and fellows taught by the individual whenever possible and appropriate
5. Organization of new teaching program(s), or integration of teaching effort within or between departments
6. Development of better teaching techniques
7. Development of short courses or "workshops" for students, residents, fellows, postgraduate professionals, and lay public
8. Development of better teaching materials, such as the preparation of a syllabus, book of procedures, course of study, laboratory manual, development of testing procedures, or other modes of evaluation. This also includes educational efforts directed at students, residents, fellows, postgraduate professionals, and the lay public.

NOTE: Either a teaching evaluation instrument devised by the Department and approved by the Dean(s) or the attached teaching evaluation form must accompany all other teaching and evaluation documentation.

Scholarly Activities

Although scholarly work takes many forms, including research and **other creative activities**, a faculty member's effectiveness can be demonstrated by such achievements as publications and personal presentations of formal papers. The quality of the individual's scholarly approach, capacity for independent thought, originality, and products of research is best determined by critical review by one's

peers. To have an impact, the information must be disseminated. This is best accomplished by publication in appropriate journals, monographs, or books, and by presenting scientific papers, and exhibits at scholarly meetings. Such activities provide the most compelling evidence of scholarship.

Some members of the faculty may contribute significantly in professional service, which can be considered as scholarly pursuit, such as the development and evaluation of new forms of treatment, new surgical procedures, or innovative diagnostic techniques, the results of which are disseminated to the professional community by publication or scientific presentation.

Under these circumstances, the decision to appoint, promote or award tenure must be based on evaluation of the quality or quantity of the faculty member's professional productivity such as:

Has the work been published or presented?

Is it innovative?

Has the task been pursued aggressively?

Has the work been done efficiently?

Has the work benefited the Department, or University?

Does the faculty member show promise of continuing contributions?

Has the faculty member received recognition for the work from peer groups by receiving awards, being elected to important offices, being appointed to consultative committees?

Has the faculty member received peer recognition by being asked to contribute significant sections to textbooks of merit?

Academic Creativity and Research

Academic creativity may manifest itself in teaching, professional activities, and research and may include the following:

1. Publication of articles in professional journals - Greater importance will be attributed to publications in journals that require a critical review, but all publications will be evaluated.
 2. Publication of books, monographs, manuals or in electronic media
 3. Development of an objective method of evaluation service in a manner that can be quantified and statistically analyzed
 4. Editorial consultation or reviews of scientific books and articles
 5. Invited presentations of original scientific data at major national or international meetings, or at major institutions or research organizations
 6. Demonstration of a sustained, externally funded and independent research program
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Academic Service Activities

Service functions must also be recognized as positive evidence for appointment; promotion and/or award of tenure provided that this service emanates from the special competence of the individual in an assigned field and are an extension of the individual's role as a scholar-teacher.

Service functions can be those performed for UAB, the Birmingham community, the State of Alabama, regional, national, or international groups. Service may include such activities as:

1. Participation in committee work
2. Fulfillment of administrative assignments
3. Contributions to the improvement of student and faculty life
4. Faculty consultation within or outside UAB
5. UAB Other professional service

Clinical Service Activities

Excellence in patient care is recognized as a **special competence in an assigned field and is an integral part of a clinical faculty member's service role**. Clinical excellence is an application of all aspects of the art and science of medicine to the health and well-being of the patient. The outstanding physician blends the best of knowledge, judgment, interest, and concern with the major focus on the patient. Examples may include:

1. Organization of a new or reorganization of an existing clinical service
 2. Development of a new inpatient referral service or treatment facility
 3. Organization of a critical care unit
 4. Reorganization of an outpatient department
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Sample Portfolio of Teaching, Research, and Service Activities

The Portfolio should comprise separate sections for the candidate's Teaching, Research, and Service activities (samples attached). It should be used to annotate the candidate's CV by providing additional information about activities beyond what is listed in the CV. For example, the impact of a specific discovery, paper, or educational program can be discussed. Each section should be limited to 2 pages, single spaced and 11-point font, and also include as supplements formal evaluations and letters documenting effectiveness in teaching, research and service, as applicable. Teaching portfolios must include a teaching evaluation instrument devised by the department and approved by the Dean(s) or the attached "Teaching Evaluation" form.

Teaching

Superior and effective teaching is a distinct value for consideration of appointment promotion and/or tenure. All faculty are expected to participate in the educational mission of the HSOM in some manner. Student evaluations should be solicited and, where possible, letters of support should also include colleague evaluations of teaching credentials, experience, and scholarly activities.

Specific expectations to be met to achieve Excellence in Teaching include, but are not limited to:

1. Leadership or course master in a divisional, departmental, or HSOM teaching program. This includes the development of a new course or program, or documented improvement of an existing course or program. Formal evaluations are required.
2. Mentoring, including leadership of a dissertation committee, or role as a primary mentor. This should be accompanied by names, dates, and outcome. Testimonial letters from trainees are useful.
3. Leadership in curriculum development at the local or national level, including development of objectives, materials, and methods of evaluation
4. Objective evidence of teaching excellence, such student/resident/fellow evaluations, teaching awards, recognition by faculty, or professional organizations.

The consistent theme for activities that reach Excellence in Teaching is leadership and intellectual input. There are many Teaching activities that are valuable and are expected from a faculty member in an academic medical center, but by themselves do not reach the level of excellence. Examples of activities that are valued, but by themselves do not reach the level of Excellence include:

1. Participation as a course lecturer
 2. Hosting a graduate student on a rotation
 3. Serving as a poster judge in various UAB educational activities
 4. Teaching of students, post-graduate students, or residents in the classroom, laboratory, clinical setting, or other specific area of expertise (this includes continuing education)
 5. Efforts to improve personal teaching skills, with outcome data
 6. Informal student, resident, or fellow advising and counseling
 7. Participation in student, resident, or fellow recruiting.
 8. Serving as a member of education, curriculum, or admissions committees
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Research & Scholarship

All faculty are expected to engage in scholarly activities to some degree. To that end, scholarly work takes many forms including research and other creative activities. A faculty member's effectiveness can be demonstrated by a continuous track record of extramural funding, original peer reviewed publications and invited presentations at other institutions and at national/international meetings. The quality of an individual's scholarly approach, capacity for independent thought, originality, and products of research is best determined by critical review from one's peers.

Several parameters are considered in determining Excellence in Research. These include, but are not limited to:

1. Demonstration of a sustained, externally funded and independent research program, with continuity over time and becoming more important for the higher-level award (e.g., awarding of Tenure, promotion to Professor). While traditionally the NIH funding was deemed critical, funding obtained from any agency or foundation is recognized.
2. Evidence of research productivity is measured by original publications in peer reviewed journals, books/book chapters, electronic media, and by presenting scientific papers, and exhibits at scholarly meetings. There is no absolute benchmark number of manuscripts that are required for promotion and/or tenure, but it would be expected that a productive faculty member would have ~20 when seeking promotion to Associate Professor, ~35-40 for Professor, with consideration taken for the impact level of the journal, and the position of authorship. Authorship on all manuscripts is valued. However, when authorship is not in the first or last position, it is important to discuss the scientific contribution in the research portfolio. It is appreciated that all authors have important contributions to a scientific manuscript, especially those reporting the findings from large clinical trials and other "team science" efforts.

As applicable, the significance of the faculty member's research should be described, including:

1. Recognition from peer groups, awards, elected to important offices, appointments to consultative committees, being asked to contribute significant sections to textbooks
2. The level of innovation
3. The prospect for future research
4. Benefits to the Department and/or UAB
5. Development of an objective method of evaluation service in a manner that can be quantified and statistically analyzed
6. Editorial consultation or reviews of scientific books and articles
7. Invited presentations of original scientific data at major national or international meetings, or at major institutions or research organizations

Activities that support a strong reputation for the faculty member's scholarship include, but are not limited to:

1. Membership on a national planning committee, NIH study section, and foundation grant reviewer
 2. Editor of a journal or membership of an editorial board
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Examples of activities that are valued, but by themselves do not reach the level of Excellence include:

1. Membership on editorial boards
2. Ad hoc manuscript reviewer
3. Internal (UAB) grant reviewer
4. Small scale publications, such as case reports, or educational materials.

Service

Service functions are recognized as positive evidence for appointment, promotion and/or award of tenure provided that this service emanates from the special competence of the individual in an assigned field and is an extension of the individual's role as a scholar-teacher. In addition to service at UAB, participation at the level of the Birmingham community and the State of Alabama, as well as in regional, national, or international groups are also valued.

Excellence in Service is achieved by having a leadership role with a strong intellectual component. Such activities include, but are not limited to:

1. Leadership in a professional service organization
2. Leadership in a major UAB educational, clinical, or research committee (local/national)
3. Director/Co-Director of a training program (e.g. graduate or residency program)
4. Director/Co-Director of a research core facility
5. Participation in committee work
6. Fulfillment of significant administrative duties, which should also include positive outcome measures
7. Leadership in community outreach

A typical faculty member will have many service activities that do not rise to the level of excellence but are valued. Participation in such activities falls under the general service category of 'citizenship', which indicates a faculty member's willingness to be a contributor to the overall well-being of the department and/or university.

Examples of activities that are valued, but by themselves do not reach the level of Excellence include, but are not limited to:

1. Contributions to the improvement of student and faculty life
2. Faculty consultation within or outside UAB
3. Organizing department retreats or social events
4. Interviewing faculty candidates and meeting with visiting scientists/clinicians
5. Judging poster sessions at UAB research events

Note: many service activities are related to activities in education and/or research, and can be listed in both

Clinical Service

Excellence in patient care is an integral part of a clinical faculty member's service role and is therefore recognized as a special competence. Excellence in clinical service is judged by several parameters, including but not limited to:

1. Patient volume, as compared to local, regional, and national peers
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2. Development of a clinical care path or area of specialty. This may be the creation of new area of clinical service, or the expansion and enhancement of an existing clinical service
3. Creating or expanding a unique or highly specialized clinical service
4. Development of new treatments, surgical procedures, or innovative diagnostic techniques, the results of which are disseminated to the professional community by publication or scientific presentation

Note: Many clinical services activities can interconnect with educational and research activities as well.

Example of Teaching Portfolio

I have achieved Excellence in Teaching through my teaching, mentoring, and educational leadership efforts at UAB, nationally, and internationally. Driven by enthusiasm of enlightening students and my research interests, I have eagerly taught classes in molecular and cellular fundamentals such as cell molecular biology, as well as in areas of my expertise including the molecular and cellular mechanisms that enable vision, G-protein coupled cell signaling, and cellular neurobiology.

At UAB, I have taught these topics to all levels of students in formal classes and in small group sessions. Of note since my promotion to Associate Professor with tenure in 2011 include the following: I served as the Course Director and lecturer of *Ocular Biochemistry* for over 10 years in the School of Optometry until I transitioned to the School of Medicine in 2019. I co-wrote, obtained, and developed a supplement for all the UAB NIGMS training grants on campus. I co-created a class on the *Art of Reproducible Science* for all NIGMS T32 trainees while serving as co-Director and teaching in the course. Additionally, I have been moderating/teaching a section of PCL 2215 *Neuroscience: The "Brain" Module* for second year medical students every year since 2017. I recently took on the role of Course Director for GBS709 *Basic Biological Organization*, the first year Graduate Biomedical Science (GBS) student required cell biology class held in their first semester. As mentioned in my Service Portfolio, I led the Cellular, Molecular, and Developmental Biology (CMDDB) theme in the Graduate Biomedical Sciences for 10 years, starting in the SOO with 4 years as co-Director, and 6 years as Director through my transition to HSOM.

Nationally, I have been an invited lecturer at the University of Houston, where I taught and engaged with biomedical engineering students in BIOE 4311-01 and BIOE 6311-01 on *The Advances in Vision Research* in the Cullen College of Engineering. I am setting up a faculty:faculty mentoring program in the HSOM, and I am currently taking the Entering Mentoring Workshop through the Center for the Improvement of Mentored Experiences in Research group through the University of Wisconsin. Internationally, I was invited to teach a *Xenopus laevis transgenesis lab*, as well as teach *Phototransduction* for several years to a highly competitive international group of students in the course "*Fundamental Issues in Vision Sciences*" at the Marine Biological Laboratories (MBL) at Woods Hole, Massachusetts until the course ended with the University of Chicago's restructuring of the MBL. More recently, I was honored to be an invited international instructor at the enTRAIN (European Network for integrated TRAINing on innovative therapies for vision restoration) in their Vision Summer School in June 2022 held in person in Vanajanlinna, Finland. I am honored to have been one of the only instructors in the Vision Summer School who hails from the United States.

I am very proud and humbled by the student evaluations of my teaching ability, and of the honors bestowed upon me because of my teaching. Comments from students include the following: "Dr. Gross is the best professor I have ever had;" "Dr. Gross was FANTASTIC. She truly had a passion for teaching and her area of study;" "Dr. Gross is my favorite teacher in my entire career, and I do have other degrees!" and "Dr. Gross is a wonderful teacher and really engaged us well... She also definitely cares about our learning as she would re-explain everything that was confusing in different ways so everyone could understand." Indeed, I have been very honored to receive the UAB President's Award for Excellence in Teaching for my work in the classroom, but most touching for me is that I have been honored by the students themselves by being awarded the American Optometric Student Association Teaching Award twice for my "dedication and excellence in Basic and Vision Science Instruction" for the two years of my eligibility.

For undergraduate students in my laboratory, it is my primary responsibility to provide a productive, inclusive laboratory environment and intellectual encouragement that enables their transition to independence. I am honored to have mentored Mr. Seth Hubbard with research in my lab, but also with applications for awards. Through diligence and hard work, Seth was awarded a summer fellowship to work in my lab from the Fight for Sight Foundation in 2021. Additionally, Seth was recently honored as a National Barry Goldwater Scholar; this is an extremely competitive national award that recognizes and supports the development of scientific talent. For graduate students, it is my responsibility to direct all aspects of scientific training, including technical and intellectual development, as well as provide a safe and inclusive environment for all. This is my directive for graduate students within my lab, and for dozens of graduate students that have invited me to serve on their dissertation committees, as well as those in the CMDDB theme that I directed/co-directed for a decade. Toward this end, I earned a Global Awareness Certificate from the UAB Center for Teaching and Learning and have been Safe Zone certified from the UAB Office of Equity, Diversity, and Inclusion. I have recently been honored by the graduate students in my lab who nominated me for the UAB Dean's Award for Excellence in Mentorship, which I was awarded in 2019.

Honors and Awards

UAB

- UAB President's Award for Excellence in Teaching, 2014
- UAB Graduate Dean's Award for Excellence in Mentorship, 2019

National

- American Optometric Student Association Excellence in Basic/ Vision Science Instruction Award, 2015
- American Optometric Student Association Excellence in Basic/ Vision Science Instruction Award, 2018

Intramural Classroom Teaching

- *Course Director*
 - VIS113: Ocular Biochemistry (08/2008 – 12/2019; extensively revamped curriculum)
 - GBSC 733: The Art of Reproducible Science (co-Director, 08/2012 – present; co-developed curriculum)
 - GBS 709: Basic Biological Organization (08/2022 – present)
- *Lecturer*

PCL 2215 Neuroscience: The "Brain" Module (12h), GBS 709: Basic Biological Organization (2h), GBSC 733: The Art of Reproducible Science (4h), CMB5: Cell and Molecular Neuroscience- Gene Therapy in the Eye (1.5h), BME690: Quantitative Physiology- Cell Signaling (2h), NEUR704 (1h), OPVS111: Basic Science and Clinical Optometry- Importance of Enzymes in Vision (2h), IBS703 (2h), NBL712 (1h), DENT/OBHS 131: System 1 Neuroscience- Early Visual Processing (1.5h), PY/NBL355: Introduction to Neurobiology- Sensory Transduction (1.h)

Educational Grant Funding

- co-Principal Director, NIH-NIGMS T32GM008111. Title: T32 Predoctoral Training in Cell and Molecular Biology. Annual direct costs \$240,324 (09/01/1984 – 06/30/2022; NCE 06/30/2023).

Mentorship

- Member, Members-in-Training Advisory Committee, ARVO 2022 – present
- Mentor, ARVO Global Mentorship Program 2020 – present
- Mentor, Neuroscience Roadmap Scholars (RMS) Program at UAB, 2016 – present
- Research Mentor, Center for Community OutReach Development (CORD), UAB, 2011 – present
- Research Mentor, Summer Program in Neuroscience (SPIN), UAB, 2021 – present

Mentored Postdoctoral Fellows: 4

Member, Dissertation and Thesis Advisory Committees: 42

Mentored Graduate Students: 15

Mentored Undergraduate Students: 9

Mentored Faculty at UAB: 10

Mentored Faculty outside of UAB: 5

Extramural Teaching Activities

National and International

- *Invited International Instructor*, Marine Biological Laboratories Special Topics Course "Fundamental Issues in Vision Research" transgenesis lab, Woods Hole, MA, 2008 – 2016
- *Invited International Instructor*, Marine Biological Laboratories Special Topics Course "Fundamental Issues in Vision Research" didactic lecture (2h) "Phototransduction", Woods Hole, MA, 2012 – 2016
- *Invited National Instructor*, BIOE 4311-01 & BIOE 6311-01 "Advances in Vision Research", University of Houston, Department of Biomedical Engineering 2h, 2020
- *Invited International Instructor*, enTRAIN (European Network for integrated TRAINing on innovative therapies for vision restoration) Vision Summer School, Vanajanlinna, Finland: "Biochemistry of Vision" 2h, 2022

Boards

- UAB Medical Scientist Training Program Advisory Board, 2018 – 2022

Example of Service Portfolio

Since my promotion to Associate Professor with Tenure in the School of Optometry in 2011 including my move to the School of Medicine in 2019, I have achieved Excellence in Service by continuing to engage in high level service at UAB, national service, international service, and leadership roles. Key service components to note include my tenure as Chair-Elect, Chair, and Past-Chair of the UAB Faculty Senate during a tumultuous time in the university's history (2014-2017). Through this, I was able to shepherd the Faculty Senate and central administration to achieve a better environment for our university-wide faculty and staff by resolving multiple long-standing issues. My accomplishments include gaining paid family leave for the first time at UAB, obtaining our first Ombudsperson at UAB, and securing an expanded UAB childcare facility. As Chair of the Faculty Senate, I led or participated in several committees, including the Faculty Senate Executive Committee (FSEC) with the President and Provost, the Deans Council, University of Alabama Board of Trustee meetings, one on one meetings with the President, and separately with the Provost. Importantly, I served on the UAB President's Strategic Planning Council, at the invitation of President Watts. My outstanding service to UAB was highlighted by President Watts when he awarded me as the inaugural recipient of the President's Award for Excellence in Support of UAB and Shared Governance.

I currently serve the Heersink School of Medicine (HSOM) in my role as Assistant Dean for Faculty Affairs. I onboard new research faculty, organize and train mentors in a new faculty mentorship program I am developing, perform exit interviews to improve areas that need assistance, and help secure awards for outstanding HSOM faculty. My UAB/HSOM service also includes a strong commitment to the UAB Graduate School. I led the Cellular, Molecular, and Developmental Biology (CMDB) theme in the Graduate Biomedical Sciences for 10 years, 4 years as co-Director and 6 years as Director. This included recruitment of graduate students, chairing or serving on multiple committees (admissions, curriculum, and others) as well as helping graduate students navigate stressful times with an open-door policy. This was especially challenging during COVID. In addition, I am/have been an active member of over 40 institutional committees.

Additionally, I have been extremely active in national and international service for the past 25+ years. This includes extensive service to the international vision research community through the Association for Research in Vision and Ophthalmology (ARVO). ARVO recently awarded me as a Fellow of ARVO (FARVO), a distinction bestowed to a select few researchers for their service to this international group. I am honored to have served as the North American representative for the Vision Research Advocacy Committee. Additionally, I founded and organize the Birmingham Women in Eye in Vision Research (bWEAVR) Association. These service activities and others listed below and on my CV are essential components of my academic responsibilities and provide additional evidence of my scholarly reputation for excellence at the national and international level.

Service-Related Honors and Awards

- Inaugural Recipient, UAB President's Award for Excellence in Support of UAB and Shared Governance, 2016
- Silver Fellow, Association for Research in Vision and Ophthalmology (FARVO), 2022

Executive Appointments

- *Assistant Dean of Faculty Onboarding, School of Medicine, UAB 2019 – 2021*
I onboard new research faculty of all ranks, also hosting an annual two-day research faculty onboarding workshop where leaders of units across the University present their units:
https://mediaspace.uab.edu/channel/channelid/219097303/?utm_source=golink&utm_medium=golink
- *Assistant Dean of Faculty Affairs, Heersink School of Medicine (SOM), UAB 2022 – present, 0.5 FTE* I continue to perform onboarding programs, as well as perform exit interviews for outgoing faculty. Additionally, I am implementing a school-wide faculty mentoring program and I will train mentors annually. I serve on several committees for local, national, and international UAB Heersink SOM faculty recognition, such as SOM Dean's Excellence Awards, ASCI, AAP, and others.

Committee Memberships

National and International – partial list

- North American Representative Leader of Vision Research Advocacy, appointed by ARVO Executive Council, 2015 – 2018
- ARVO Global Mentorship Program Mentor, 2020 – present
- ARVO Members-in-Training Committee Member, 2022 – present

- Elected from an international pool of candidates to the Biochemistry (BI) Annual Program Planning Committee Member, ARVO Annual Meeting, 2010 – 2013
- Marine Biological Laboratory International Committee on Admissions Member, Special Topics summer course, “*Fundamental Issues in Vision Research*,” 2010 – 2018
- NIH/NEI Advocacy Committee Member, ARVO, 2010 – 2014
- UAB Representative to the American Association of Medical Colleges (AAMC) Council of Faculty and Academic Societies (CFAS), 2013 – 2020

Institutional – partial list from service on over 40 UAB committees

- Chair-Elect, UAB Faculty Senate, 2014 – 2015
- Chair, UAB Faculty, 2015 – 2016
- Past-Chair, UAB Faculty Senate, 2016 – 2017
- Member, UAB President’s Strategic Planning Council, UAB, 2016 – 2020
- Member, UAB President’s Liaison Committee, 2015 – 2016
- Director, CMDDB Graduate Theme, UAB GBS, 2016 – 2022
- co-Director, Cellular, Molecular, and Developmental Biology (CMDDB) Graduate Theme, UAB Graduate Biomedical Sciences (GBS), 2011 – 2015
- Member, UAB Dean of Libraries Search Committee, 2013 – 2014
- Member, UAB Dean of the School of Optometry Search Committee, 2013 – 2014
- Member, UAB Dean of the Graduate School Search Committee, 2014 – 2015
- Member, UAB Department of Neurobiology Promotions and Tenure Committee, 2019 – present
- Chair, UAB Heersink SOM Dean’s Award for Service Selection Committee, 2022 – present

Organization of Conferences and Associations

- co-Founder and co-Organizer, Southeastern Vision Research Conference 2016-2019
- Founder and Organizer, Birmingham Women in Eye and Vision Research (bWEAVR), 2013 – present

Conference Program Planning Committees and Sessions Serving as Chair/Moderator

- I have served as chair/moderator at over twenty sessions at ARVO and at ISER annual meetings and have served on Program Planning Committees for ARVO Annual Meeting BI Section, 2011 – 2013 and Southeastern Vision Research Conference Program Committee, 2017 – 2020.

Editorial Boards

- Frontiers in Neuroscience, 2013 – present
- Journal of Translational Genetics and Genomics, 2021 – 2022

Peer Review Activities

Grants (National and International)

- I have served on several study panels for national and international grants. These include the following: NSF Review Panel for Modulation in Neural Systems Cluster *ad hoc* member, 2013 – 2018; NSF Review Panel in Molecular and Cellular Biosciences *ad hoc* member, 2019; Health Research Charities Ireland & Fighting Blindness Ireland Joint Funding Charities Group *ad hoc* review panel member, 2021 – present; NSF Division of Ocean Sciences, Biological Oceanography *ad hoc* review panel member, 2022; NIH ZRG1 F05-Q L study section *ad hoc* member, 2021 – present (4 times to date); NIH National Eye Institute (NEI) Translational Research Program on Therapy for Visual Disorders (R24) study section *ad hoc* member, 2022; Fight for Sight Scientific Review Committee, 2013 – present

Manuscripts

- I have reviewed for many journals several times (approximately 20 per year). These include the following: IOVS (Investigative Ophthalmology & Visual Science), Vision Research, Photochemistry and Photobiology, JCI (Journal of Clinical Investigation), JBC (Journal of Biological Chemistry), Biochemistry, Scientific Reports, Molecular Vision, Experimental Eye Research, Frontiers in Neurobiology, Journal of Neuroscience, Human Molecular Genetics, PLoS ONE, Molecular Neurodegeneration, Molecular Neurobiology, Pharmacology Research & Perspectives, Communications Biology, Nature Communications, eLIFE, Cells, Nature Cell Biology.

Example of Research Portfolio

Although not one of my stated areas of excellence for promotion, I have a strong track record of research and scholarship. Since joining the School of Optometry in September 2006, my promotion to Associate Professor with tenure in 2011, and move to the School of Medicine as Associate Professor with tenure in 2019, I have maintained an independent, externally funded research program in the molecular mechanisms of blinding diseases, retinal development, and maintenance that has earned me national and international recognition.

More specifically, I have been studying photoreceptor proteins, their trafficking, the chromophore 11-*cis* retinal/ all-*trans* retinal entry and turnover, the role of rod cell formation and maintenance, the genetic basis of rod cell degeneration in blinding diseases, and the epigenetic and transcriptomic changes found in retinal degenerations. My lab utilizes animal models such as frogs, mice, tree shrews, and research-consented braindead human organ donors to study cellular consequences of retinal diseases such as retinitis pigmentosa, Leber's congenital amaurosis, and glaucoma.

Since being promoted to Associate Professor, I have given 8 talks at international meetings, including being the Keynote Speaker in 2022 at the annual meeting for enTRAIN, the European Network for Integrated TRAINing on innovative therapies for vision restoration, in Vanajanlinna in Hämeenlinna, Finland. I was invited to give 2 other talks at international meetings that were canceled due to COVID-19 and gave two invited international seminars at Aalto University (virtual) and the University of Helsinki in Finland (in person). Additionally, I have presented my laboratory's research as an invited symposium platform speaker at the ISER Annual Meeting in the Gold Coast, Queensland, Australia in February 2023. Since 2011 I have also given 3 invited talks at regional or local meetings, and 8 invited lectures at universities in the United States, including UAB. In 2020 I was identified as a "Leading Scientist in Vision Research" (one of five scientists nationally awarded in the Retinal Diseases group) by ScEYence, a national working group of 10 organizations dedicated to vision research that includes the NIH National Eye Institute.

I am currently PI of an NIH R01, and Co-Principal Director of a NIH T32 grant for Predoctoral Training in Cellular, Molecular, and Developmental Biology at UAB. I have two other pending NIH grants (R01 and R21), and numerous prior research grants from NIH and private foundations. The MPI R01 pending grant (Girkin, lead PI, AKG, PI) garnered a 9%tile at the NIH/NEI; we are awaiting notice of award from our program officer. As Associate Professor I published 18 peer reviewed papers, 13 as senior author. I currently mentor 1 postdoctoral trainee, 3 doctoral students, and 2 masters students in my lab. As an Associate Professor, I supervised an additional one postdoctoral trainee, 5 doctoral students, 5 masters students, and 7 undergraduate students in my lab, one of whom was awarded the prestigious National Goldwater Scholar Award. I currently serve on the thesis committee for 6 doctoral and 3 MSTP students. As an Associate Professor, I served on the thesis committees of an additional 12 doctoral and 2 masters students who have completed their training, serving as committee Chair for 5 of those students.

Several years ago, I experienced an extremely difficult convergence of demanding issues. These include the tumultuous period at UAB while I was Chair-Elect of the Faculty Senate through Past-Chair (2015-2017), a transition to a new School, and family issues. During this time my husband and I adopted an infant boy, and I soon thereafter gave birth to a girl with a congenital heart defect. Despite these challenges and my extensive service and teaching responsibilities at the time, I maintained my laboratory. We continued to perform research with rigor during this time, and publish high quality papers, although our productivity was somewhat delayed due to these taxing issues. Since then, I have regained momentum in my research, as evidenced by my current NIH funding, recent publications, and recent national and international invited talks.

Major research findings and publications since 2011

Complete list of published work in MyBibliography is found [here](#).

Genetics of rod photoreceptor development and retinal health

By virtue of its laminar structure, ease of access via microscopy and genetic manipulability, the mouse retina has become a useful tool for monitoring genetic alterations and survivability. We and our colleagues have made advances in the field by making rhodopsin knock-in mice that enable one to monitor genetic fluctuations. In addition, we have discovered a novel protein in the retina necessary for maintenance of retinal health and induced domain-specific in-frame deletions of genes expressed in retina. These discoveries set a foundation for the current proposed studies to transition into the epigenetics and transcriptomic processes underlying the control of vision.

1. Boitet ER, Reish NJ, Hubbard, MG, **Gross AK**. (2019) NudC regulates photoreceptor disk morphogenesis and rhodopsin localization. *FASEB J* 33(8):8799-8808. Doi: 10.1096/fj.201801740RR. PMC6662962.
2. Challa AK, Boitet ER, Turner AN, Johnson LW, Kennedy D, Downs ER, Hymel KM, **Gross AK** and Kesterson RA. (2016) Novel hypomorphic alleles of the mouse tyrosinase gene induced by CRISPR-Cas9 nucleases cause non-albino pigmentation phenotypes. *PLoS One* 11 (5):e0155812. PMC4880214.
3. Sandoval IM, Price BA, **Gross AK**, Chan F, Sammons JD, Wilson JH, Wensel TG. (2014) Abrupt onset of mutations in a developmentally regulated gene during terminal differentiation of post-mitotic photoreceptor neurons in mice. *PLOS ONE* 9 (9): e108135. PMID: PMC4180260.
4. Rana T, Shinde VM, Starr CR, Kruglov AA, Boitet ER, Kotla P, Zolotukhin S, **Gross AK**, Goratyuk MS (2014). An activated unfolded protein response promotes retinal degeneration and triggers an inflammatory response in the mouse retina. *Cell Death and Disease* 18 (5): e1578. PMID: PMC4454166.

The role of rhodopsin in the blinding diseases congenital stationary night blindness and retinitis pigmentosa

To better understand the biochemical role of rhodopsin in healthy and diseased states to aid in future therapeutics, we are interested in the most severe, earliest onset cases of rhodopsin mediated ADRP and the relatively benign rhodopsin mutants that cause CSNB. This gives both human and translational relevance to all our work.

1. Hollingsworth TJ, Hubbard MG, Levi HJ, White W, Wang X, Simpson R, Jablonski MM, and **Gross AK**. (2021) Proinflammatory pathways are activated in the human Q344X rhodopsin knock-in mouse model of retinitis pigmentosa. *Biomolecules*. 11(8):1163. doi: 0.3390/biom11081163. PMID: PMC8393353.
2. Hollingsworth TJ and **Gross AK**. (2020) Innate and autoimmunity in the pathogenesis of inherited retinal dystrophy. *Cells*. 9(3). Pii: E360. PMID: PMC7140441.
3. Bales KL, Ianov L, Kennedy AJ, Sweatt JD, and **Gross AK**. (2018) Autosomal dominant retinitis pigmentosa rhodopsin mutant Q344X drives specific alterations in chromatin complex gene transcription. *Mol Vis*. 24:153-164. PMID: PMC5815338.
4. Hollingsworth TJ and **Gross AK**. (2013) The Severe Autosomal Dominant Retinitis Pigmentosa Rhodopsin Mutant Ter349Glu Mislocalizes and Induces Rapid Rod Cell Death. *J. Biol. Chem.* 288 (40): 29047-29055. PMID: PMC3790004.

The molecular consequences of high intraocular pressure in the living human eye

Glaucoma is the leading cause of irreversible blindness and is characterized by damage to retinal ganglion cells and the optic nerve. Our team uses a completely novel *in vivo* human model that we have developed at the UAB. We follow *in vivo* studies with molecular and cellular studies immediately post-mortem *ex vivo*, providing a paradigm shift in the field of glaucoma research. We are the only team in the world manipulating human eyes *in vivo* to study the pathological consequences of acute and prolonged IOP. Using this model, we are determining the relationship between IOP-induced changes in vascular perfusion density in the retina with cellular transcript and protein changes in living human eyes for the first time.

1. Strickland RG, Garner MA, **Gross AK**, Girkin CA. (2022) Remodeling of the Lamina Cribosa: Mechanisms and Potential Therapeutic Approaches for Glaucoma. *Int J Mol Sci*. Jul 22;23(15). doi: 10.3390/ijms23158068. PubMed PMID: 35897642; PMID: PMC9329908.
2. Garner MA, Strickland RG, Girkin CG, **Gross AK**. Mechanisms of retinal ganglion cell injury following acute increases in intraocular pressure. *Front. Ophthalmol.*, 2022, 2:2007109. Doi:10.3389/fopht.2022.1007103. <https://www.frontiersin.org/articles/10.3389/fopht.2022.1007103/full>
3. Girkin CA, Garner MA, Fazio MA, Clark M, Karuppanan U, Hubbard M, Bianco G, Hubbard S, Fortune B, **Gross AK**. Retinal electrophysiologic response to IOP elevation in brain-dead organ donors. *Experimental Eye Research*, 2023, doi: <https://doi.org/10.1016/j.exer.2023.109420>

Current extramural funding

"Photoreceptor disk formation and retinal degenerations"

National Institutes of Health (NEI R01EY030096-01A1, PI: Alecia K. Gross),

Project period: 07/01/2020-06/30/2024

The objective of this proposal is to understand the molecular mechanisms controlling cytoskeletal regulation in rod and cone photoreceptor cells. We will uncover the process of disk formation and mitochondrial transport and how it relates to photoreceptor degenerations.