**A. OVERVIEW OF RESEARCH SCHOLARLY ACTIVITIES**

Below are the Research/Scholarly activities for Dr. \*\*\*\*, which currently account for 75% of his time/effort as Faculty at UAMS. The highlights of this section include:

* **Research/Scholarly Effort**

30 hours/wk for Research/Scholarly Activities (40 hr/wk \* 75% time/effort = 30 hr/wk)

* 5 hr/wk grant writing
* 5 hr/wk publications
* 15 hr/wk data analysis
* 5 hr/wk presentations, grant reviews, manuscript review, other
* **Criteria 1: Research productivity**
* **56 peer-reviewed published manuscripts,** 26 publications since appointed Faculty in 2017, including 13 corresponding author manuscripts (**Fig. 1**).
* Average of **~ 4 manuscripts/year as first, last, or corresponding author** since appointed Faculty in 2017.
* **One patent** (pending) on bone-targeted therapies to treat cancer-induced bone disease.

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| **Figure 1.** Dr. \*\*\*\*'s number of peer-reviewed manuscripts per year (**a**) and the number of citations from peer-reviewed manuscripts per year (**b**). IU=Indiana University; UAMS=Univeristy of Arkansas for Medical Sciences. |

* **Criteria 2: Extramural Funding**

**Principal investigator (PI), co-PI, and co-investigator (co-I)** on multiple extramural and intramural grants:

* R01AR080116 NIH/NIAMS (site-PI) $16,480/year direct costs 04/01/22-03/31/27
* R01CA241677 NIH/NCI (site PI) $16,480/year direct costs 07/01/20-02/28/25
* R37 CA251763 NIH/NCI (PI) $236,162 /year direct costs 09/01/20-05/31/25
* R01CA209882 NIH/ NCI (co-I) $256,504/year direct costs 03/15/17-02/28/23
* PharmaMar S.A. (co-PI) $56,000/total direct costs 02/01/21-01/31/23
* Arkansas Breast Cancer Program (PI) $50,000/total direct costs 09/01/21-08/31/23
* Involved as PI, co-PI, or co-I for **~ $600K/year** in direct cost grant dollars (**Fig. 2**).
* Dr. \*\*\*\* covers **75% of his annual salary** with extramural funds.
* **Awarded a MERIT Award (R37).** MERIT awards are given to early-stage investigators with applications that receive a score within the NCI pay line for experienced investigators and are eligible for up to 7 years of funding.

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| **Figure 2.** Extramural funding including Dr. \*\*\*\* as PI, co-PI, or co-I (Direct Costs). IU=Indiana University; UAMS=Univeristy of Arkansas for Medical Sciences. |

* **Criteria 3: International/National/Regional Reputation for excellence in Research/Scholarly activities**
* **65 presentations/seminars** since appointed Faculty by him or members of his laboratory: Invited lectures (16), Oral presentations (14), Poster presentations (23), Chaired sessions (8)
* **Member of 3 Editorial Boards**: Current Osteoporosis Reports, Osteoporosis and Mineral Metabolism Journal, and Journal of Cancer Treatment and Metastasis.
* Peer review activity: **59 manuscripts peer-reviewed** and **ad-hoc Reviewer** for international (8), national (25), and institutional (14) grants since appointed Faculty in 2017.
* **NIH Tumor Host Interactions Study Section** Standing member.
* Published manuscripts with a total of **2579 citations** (Google Scholar 8/31/22). ResearchGate indicates a top score of 36.99, which is higher than 95% of members (**Fig. 3**).
* Dr. \*\*\*\* was selected as a **Research Rising Star** by the UAMSDivision of Research and Innovation in 2022 (**Fig. 4**).

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| **Figure 3.** Metrics on Dr. \*\*\*\*'s impact on the scientific community. (**a**) Dr. \*\*\*\* is in the top 5% of the ResearchGate community (15 million users worldwide). (**b, c**) Research interest (RI) is a score computed based on each publication's citations, recommendations, and weekly reads from ResearchGate members. Dr. \*\*\*\*'s RI is in the top 10% of the ResearchGate community within his field of study. (**d**) Google Scholar metrics include the number of citations, h-index (a metric evaluating the cumulative impact of an author's scholarly output and performance), and i10-index (the number of publications the researcher has written with at least ten citations). |  |

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| **Figure 4.** UAMS Division of Research and Innovation 2022 publication. |

**B. RESEARCH INTERESTS**

**B1. The \*\*\*\* lab.** The \*\*\*\* laboratory investigates how cancer cells alter the biology of other cells in the tumor microenvironment to identify targetable factors for the treatment of cancer in bone (see overview in **Fig. 5**). Independent current projects in his laboratory investigate bone-targeted therapies to treat multiple myeloma and regulate myeloma cell dormancy (translational research), the crosstalk between osteocytes and cancer cells (basic research), and the mechanisms underlying cancer-induced bone disease (basic research). Since his recruitment to UAMS, Dr. \*\*\*\* has acquired independent and collaborative extramural and intramural funding and currently covers 75% of his salary with extramural funds. His research team is composed of two graduate students, two postdoctoral fellows, and one research associate.

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| **Figure 5.** Summary of current projects and research activities in Dr. \*\*\*\*'s laboratory. |

His laboratory focuses on cancer that grows in bone. Multiple myeloma (MM) is a hematological malignancy characterized by the uncontrolled growth of plasma cells in the bone marrow. Recent progress in anti-myeloma therapy has greatly increased the life expectancy for patients. Still, MM remains incurable due to relapses thought to originate from the reactivation of dormant MM cells resistant to treatment. Further, about 70% of MM patients present with bone lesions at diagnosis, and >90% of patients have bone involvement with advanced disease, which can result in fractures, negatively affect the quality of life, and are a leading cause of morbidity and mortality in MM patients. Current anti-MM therapies do not repair bone and can adversely affect the skeleton. Thus, disease relapse and bone health represent unmet medical needs that require new approaches to treat MM more effectively.

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| **Working hypothesis** |

Dr. \*\*\*\*'s research addresses these unresolved issues by testing the ability of combined therapeutic regimens targeted to the bone to simultaneously inhibit Notch and activate Wnt signaling within the bone-MM niche (***R37CA251763 NIH/NCI, PI***), an independent line of research funded upon his arrival to UAMS. His lab generated a novel bone-targeted Notch inhibitor (BT-GSI) that circumvents the side effects of systemic Notch inhibitors while preserving anti-tumor and anti-resorptive efficacy. In ongoing work, the \*\*\*\* lab is currently evaluating the effectiveness of combined therapy with BT-GSI and a neutralizing antibody against Sclerostin, an FDA-approved agent to treat osteoporotic patients. This combined therapy of bone-targeted treatments is expected to reduce tumor growth, prevent disease relapse, and repair damaged bone. These studies could provide important information to guide the development of novel approaches to treating MM patients. Given the prominent role of Notch and Wnt signaling in others cancers, results from this study could also be relevant to other malignancies that grow in bone. Further, successful completion of these experiments will provide key information about targetable interactions in the MM-bone microenvironment regulating MM growth, MM cell dormancy, and bone destruction; and expand current concepts of cancer/bone biology to guide the development of new therapies for MM and other cancers that grow in bone.

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| **Working hypothesis** |

His lab is also interested in understanding the role of bone cells in the progression of multiple myeloma disease in the bone marrow. Osteocytes are the most abundant cells in bone and a long-lived source of factors in the tumor microenvironment. During his postdoctoral studies, Dr. \*\*\*\* discovered that osteocytes are highly connected to and have reciprocal crosstalk with MM cells, supporting tumor growth and bone destruction. These observations demonstrated that osteocytes, overlooked in cancer for decades, are significant players in the myeloma tumor niche. Further, he showed that targeting osteocytes and their communication with MM cells effectively decreases MM growth and improves bone health, identifying osteocytes and their derived factors as attractive therapeutic targets in MM. This line of investigation was supported by the NIH during his time at Indiana University (*R01CA209882, NIH/NCI)* and was transferred to UAMS (Bellido PI, \*\*\*\* co-I). Dr. \*\*\*\* expanded this line of investigation in his laboratory and discovered new functions of osteocytes in angiogenesis and de novo resistance to proteasome inhibitors in MM cells. These findings are the premise of acompetitive renewal submission to renew the grant mentioned above (***R01CA209882, NIH/NCI, contact PI***), in which Dr. \*\*\*\* now serves as the contact PI*.* These studies should provide a deeper understanding of the cellular and molecular mechanisms whereby osteocytes support MM cells in the tumor microenvironment and could provide important information to guide the development of novel therapeutic approaches to improve clinical outcomes in MM patients.

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| **Working hypothesis** |

Given the emerging role of osteocytes in multiple myeloma, upon his arrival at UAMS, Dr. \*\*\*\* initiated an independent new line of investigation to understand the role of osteocytes in breast cancer bone metastasis and obtained independent funding support from the Center for Musculoskeletal Disease Research and P20GM125503,NIH/NIGMS (***Pilot Project, PI***)andthe Arkansas Breast Cancer Research Program *(****Pilot Award, PI***). Bone provides a unique niche for rapid tumor growth and is the preferred site for breast cancer cells to metastasize. Once breast cancer metastasizes to bone, it is incurable. Moreover, bone metastases weaken the bone, lead to fractures, and cause bone pain. The bone microenvironment is a critical player in tumor progression and a promising therapeutic target in breast cancer. Yet, studies on the breast cancer niche in bone have been limited mainly to the crosstalk between cancer cells, osteoblasts, and osteoclasts, known as the vicious cycle of bone metastasis. Thus, a better understanding of the cellular and molecular events in the metastatic bone niche is needed to identify new targets to treat this devastating disease. The long-term goal of this line of investigation is to understand the role of osteocytes in the progression of metastatic breast cancer in bone. Dr. \*\*\*\*'s laboratory has gathered evidence suggesting osteocytes stimulate the proliferation, invasion, and migration of metastatic BCa cells. Further, breast cancer cells increased in osteocytes the expression of markers of cellular senescence, a process that causes irreversible cell cycle arrest, profound changes in gene expression and metabolism, and the development of a senescence-associated secretory phenotype (SASP) associated with pro-inflammatory and protumorigenic effects. Osteocyte senescence has been recently linked to bone loss seen with aging, irradiation, or diabetes. However, whether senescent osteocytes accumulate in bones infiltrated with breast cancer cells and contribute to cancer progression and bone destruction through SASP is unknown. The data collected support the notion that bone metastatic breast cancer cells reprogram osteocytes, which acquire a senescent phenotype and contribute to tumor growth and osteolytic bone destruction. This hypothesis is currently being tested in vitro and in vivo, using single-cell RNA sequencing, a mouse model of breast cancer bone metastasis, and genetic and pharmacologic approaches to interfere with senescence. This set of studies should provide new evidence about the reciprocal communication between osteocytes and breast cancer cells in bone and could provide new therapeutic targets to combat the tumor progression of tumor cells in bone and improve bone health in breast cancer patients.

**B2. Collaborative work within the Institution.** One of the major attractants for Dr. \*\*\*\* to join UAMS was the extensive bioinformatics expertise and unique myeloma patient databases present at the institution. Upon his arrival, the \*\*\*\* laboratory initiated collaborations with other UAMS faculty to enhance the translational potential of his preclinical studies with *in silico* approaches directed to mine patient databases. Dr. \*\*\*\* currently collaborates with Drs. Ashby, Schinke, Choudhury, and Nookaew in mining myeloma patient databases. Dr. Ashby (Biomedical Informatics) has extensive expertise in mining myeloma patient databases and has been the driving force of this collaboration. Dr. Schinke (Internal Medicine, Hem-Onc) provides clinical advice. Dr. Choudhury is an expert in analyzing epigenetic marks in cancer cells and is the PI of several studies on myeloma patients. Dr. Nookaew assists with the analysis of single-cell RNA sequencing. This group has been working together for almost a year, published a paper, and submitted two NIH applications currently under revision.

Dr. \*\*\*\* established collaborations with different UAMS faculty to share his bone/cancer biology and osteocyte expertise. Dr. \*\*\*\* collaborates with Dr. Yoon (Internal Medicine) in a project investigating the effects of natural products on multiple myeloma bone disease. In this collaboration, Dr. \*\*\*\* tests the effects of these compounds in osteocytes using *in vitro* and *ex vivo* models. These results will be used as preliminary studies to support an NIH application from Dr. Yoon. Dr. \*\*\*\* also works with Dr. Coudhury's group (Pediatrics). Dr. Choudhury is investigating the effects of JQ1, a potent inhibitor of the BET family of bromodomain proteins, on MM cell survival and sensitivity to chemotherapy. In this project, Dr. \*\*\*\* investigates the effects of JQ1 on the viability of myeloma cells in the presence/absence of chemotherapeutic agents. Results from this collaboration are included in a manuscript currently under preparation. Further, Dr. \*\*\*\* collaborates with Dr. Nookaew (Bioinformatics) on a project developing a bioinformatics tool to analyze extrachromosomal circular DNA. Dr. \*\*\*\* provided DNA from mammalian cell lines (osteocytes, myeloma cells, and breast cancer cells) and sperm and eggs from mice. Results from this collaboration were published in bioRxiv.org and are currently under revision in Genome Research. Lastly, Dr. \*\*\*\* collaborates with Dr. Ambrogini (Internal Medicine, Endocrinology) on the collection and process of human skeletal tissues. Dr. \*\*\*\*'s expertise in this area was critical to establishing this program at UAMS. He worked with Dr. Ambrogini to set up protocols to obtain skeletal tissues and process them for RNA and DNA isolation, extract primary bone cells, histology, and establish *ex vivo* bone organ cultures. This has become a unique resource for skeletal investigators at UAMS and is now part of the Histology Core of the Center for Musculoskeletal Disease Research, directed by Dr. O'Brien (Endocrinology).

**B3. Collaborative work outside the Institution.** Dr. \*\*\*\* maintains a long-standing collaboration with Dr. Roodman (Indiana University). Both labs are interested in identifying the molecular processes responsible for multiple myeloma bone disease to develop mechanism-based treatments to improve bone, overcome PI resistance, and increase patient survival. This collaboration focuses on the multi-domain protein p62 (sequestosome-1), a hub for multiple signaling pathways (e.g., p38 MAPK and NFκB) increasing MM cell growth and osteoclast activity, and inducing protracted suppression of osteoblast in MM. Dr. Roodman developed XRK3F2 (XRK), a small molecule that binds p62-ZZ. XRK treatment of MM-bearing mice induced dramatic new bone formation, MM cell death, and enhanced the anti-MM effects of the proteasome inhibitors bortezomib and carfilzomib. In this collaborative work, the \*\*\*\* lab investigates the relative contribution of osteocytes to XRK's effects in multiple myeloma bone disease using *in vitro* and *ex vivo* approaches. This work is supported by a subcontract from the *NIH/NCI (****R01CA241677, site PI***), funded upon Dr. \*\*\*\*'s arrival at UAMS.

Dr. \*\*\*\* also collaborates with Dr. Roodman to investigate the role of osteocytes in Paget's disease (PD). PD of bone commonly occurs in patients >50 years of age and represents the most exaggerated example of coupled bone remodeling. PD patients have characteristic bone lesions that are highly localized areas of bone in which both osteoclast and osteoblast activity are markedly increased, resulting in rapid local overproduction of bone of poor quality, which can cause significant clinical problems. The contributions that osteocytes, the major regulators of normal bone remodeling, make to PD are not well-characterized. Dr. \*\*\*\* works with Dr. Roodman to investigate the abnormal function of osteocytes in PD and determine how changes in osteocyte function impact the location, development, and progression of the focal bone formation characteristic of PD. Results from these studies should apply to a broad spectrum of bone diseases, where bone formation and resorption are unbalanced in focal areas of the skeleton, e.g., osteoporosis, bone metastasis, myeloma, and inflammatory bone diseases. These experiments are supported by a subcontract from the *NIH/NIAMS (****R01AR080116, site PI***) obtained upon Dr. \*\*\*\*'s arrival at UAMS.

**B4. Collaborations with Industry.** Identifying new therapeutic agents that simultaneously suppress MM growth and protect bone is an unmet need for multiple myeloma. To achieve this goal, Dr. \*\*\*\* collaborates with pharmaceutical companies to test the effects of new therapeutics using his *in vitro/ex vivo/in vivo* models. While at Indiana University School of Medicine, Drs. \*\*\*\* and Bellido established a collaboration with PharmaMar S.A., a pharmaceutical company located in Madrid, Spain (***research contract PharmaMar SA, co-PI***). This collaboration was successfully transferred to UAMS to continue the proposed experiments. This project investigates the effects of Aplidin, a novel anti-cancer marine-derived compound, on MM and bone cells. We found that Aplidin potently inhibited MM cell growth and induced apoptosis, effects that were enhanced by dexamethasone (Dex) and bortezomib (Btz). Aplidin modestly reduced osteocyte/osteoblast viability and decreased osteoblast mineralization, effects that were enhanced by Dex and partially prevented by Btz. Further, Aplidin markedly decreased osteoclast precursor numbers and differentiation and reduced mature osteoclast number and resorption activity. Moreover, Aplidin reduced Dex-induced osteoclast differentiation and further decreased osteoclast number when combined with Btz. Lastly, Aplidin alone, or suboptimal doses of Aplidin combined with Dex or Btz, decreased tumor growth and bone resorption in ex vivo bone organ cultures that reproduce the 3D-organization and the cellular diversity of the MM/bone marrow niche. These results demonstrated that Aplidin has potent anti-myeloma and anti-resorptive properties and enhances proteasome inhibitors' blockade of MM growth and bone destruction. In this line of research, ongoing efforts are directed to evaluate *in vivo* the effects of a combined therapy based on Aplidin and bortezomib on tumor progression and bone disease. Aplidin has been approved for the treatment of MM patients in Australia. If successful, results from these studies could guide the development of a new therapeutic regimen for MM patients.

**C. Funding**

Since being appointed Faculty in 2017, Dr. \*\*\*\* has obtained independent extramural, foundation, industry, and intramural funding as a PI. After he arrived at UAMS, he acquired extramural funding from the National Institutes of Health (NCI (2), NIAMS (1), and NIGMS (1)), industry funding through a research contract with the pharmaceutical company PharmaMar S.A., and intramural funding by the Arkansas Breast Cancer Research Program (**Table 1**).

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Type** | **Total** | | | | | **Since UAMS appointment** | | | | |
| PI | Co-I | Pending | In prep. | Total | PI | Co-I | Pending | In prep. | Total |
| Extramural | 4 | 1 | 2 | 2 | 9 | 4 | 0 | 2 | 2 | 8 |
| Foundation | 3 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 0 |
| Industry | 2 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 |
| Intramural | 5 | 0 | 0 | 0 | 5 | 1 | 0 | 0 | 0 | 1 |

**Table 1.** Summary of Dr. \*\*\*\*'s grant support since appointment as Assistant Professor (Indiana University, 2017-2020, UAMS, 2020-2022).

**C1. Current Funding**

**Extramural**

1. R01AR080116 04/01/2022-03/31/2027 1.2 calendar

NIH/NIAMS (Roodman) **$16,480 direct costs/yr**

Role: **PI subcontract**

Title: Osteoclast-Osteocyte Interaction's in Paget's Disease. *This project investigates the role of osteocytes in the local high bone remodeling that occurs in Paget's disease.*

2. R01CA241677 07/01/2020-02/28/2025 1.2 calendar

NIH/NCI (Roodman) **$16,480 direct costs/yr**

Role: **PI subcontract**

Title: Manipulating the N-end Rule Protein Degradation Pathway to Build Bone and Decrease Tumor Growth in Multiple Myeloma Bone Disease. *This project will investigate the mechanisms responsible for XRK's effects in MM to build bone, decrease tumor growth and develop new mechanism-based therapeutic agents for MM.*

3. R37CA251763 19/01/2020-05/31/2025 3.6 calendar

NIH/NCI **$236,162 direct costs/yr**

**Role: PI**

Title:Bone-Targeted Therapies to Improve Bone Health and Prevent Relapse in Multiple Myeloma. *This study investigates the efficacy of bone-targeted therapies on the progression of multiple myeloma and the associated bone disease.*

4. R01CA209882 03/15/2017-02/28/2023 3.0 calendar

NIH/NCI (Bellido, Roodman) **$256,504 direct costs/yr**

**Role: co-I**

Title: Musculoskeletal effects of osteocyte-tumor cell interactions in myeloma. *This study investigates the role of osteocytes and their derived factors in the onset and progression of multiple myeloma-induced bone disease.*

**Intramural**

5. Pilot Award 09/01/2021-08/31/2023 0.0 calendar

Arkansas Breast Cancer Research Program **$25,000 direct costs/yr**

**Role: PI**

Title: Pathological Cross-talk Between Senescent Osteocytes and Breast Cancer Cells in Bone Metastasis. *This project investigates the role of senescent osteocytes in metastatic breast cancer progression in skeletal tissue.*

**Industry Contracts**

6. Research contract 02/01/2021-01/31/2023 0.0 calendar

PharmaMar S.A. (Bellido, \*\*\*\*) **$23,000 direct costs/yr**

**Role: co-PI**

Title: Characterization of Aplidin® (plitidepsin) effects on multiple myeloma (MM)-induced bone disease. *This proposal aims to investigate the effects of Aplidin on osteocytes and multiple myeloma cells using in vitro, ex vivo, and in vivo approaches.*

**C2. Pending Funding**

**Extramural**

1. R01CA209882 2023-2028 3.0 calendar

NIH/NCI (\*\*\*\*, Bellido) **$337,922 direct costs/year**

**Role: contact PI**

Title: Contribution of osteocytes to the musculoskeletal effects of Multiple Myeloma.

Score: 30 percentile; Resubmission: November 5, 2022

2. P20GM125503 2022-2027 1.8 calendar

NIH/NIGMS (O’Brien) **$216,166 direct costs/yr**

**Role: Core Director**

Core D: Bone Imaging Core.

Score: 29 (fundable score)

**C3. Under preparation**

1. R21 2023-2025

NIH/NIAMS (Nookaew, **\*\*\*\***)

**Role: co-PI**

Title: Targeting extrachromosomal DNA in the Bone Microenvironment.

To be submitted: October 5, 2022

2. F31 2023-2026

NCI/NIH (Hayley M. Sabol)

**Role: sponsor/primary mentor**

Title: Notch3 as a signaling hub controlling tumor proliferation, bone destruction, and drug resistance in multiple myeloma.

To be submitted: December 8, 2022

**D. Past Funding**

1. Pilot Project 03/01/2021-06/30/2022 0.0 calendar

NIH/NIGMS-UAMS Center for Musculoskeltal Disease Research **$75,000 direct costs/yr**

**Role: PI**

Title Epigenetic reprogramming of osteocytes by metastatic breast cancer cells. *This grant investigated in vivo the effects of metastatic breast cancer cells on the methylome and transcriptome of osteocytes.*

2. Pilot Project 08/01/2019-07/30/2020 0.0 calendar

American Cancer Association-IUSM Simon Cancer Center **$40,000 direct costs/yr**

**Role: PI**

Title: "Targeting Notch Signaling in the Bone-Tumor Niche to Regulate Multiple Myeloma Cell Dormancy." *This grant investigated the effects of Notch signaling inhibition on myeloma cell dormancy.*

3. Master Program MU-COM 05/01/2019-04/31/2020 0.0 calendar

Marian University **$5,000 direct costs/yr**

**Role: PI**

*This grant provided funds to support the thesis research work of one master student.*

4. Use of cores program 03/01/2019-02/28/2020 0.0 calendar

IUSM- Clinical and Translational Sciences Institute **$5,000 direct costs/yr**

**Role: PI**

Title: “Role of osteocytes in regulating body energy balance." *This grant provided funds to study the role of osteocytes in energy metabolism.*

5. Scholar Award 06/01/2016-12/31/2019 1.8 calendar

American Society of Hematology **$34,000 direct costs/yr**

**Role: PI**

Title: “Targeting Notch in multiple myeloma." *This study investigated the efficacy of genetic and pharmacologic inhibition of Notch receptor 3 signaling in MM and its associated bone disease.*

6. Pilot Project Award 05/01/2018-12/31/2019 0.0 calendar

IUSM-Herman B Wells Center for Pediatric Research  **$20,000 direct costs/yr**

**Role: PI**

Title: "Actions of Sclerostin in pancreatic beta-cell function." *This application aimed to investigate the effects of bone-derived Sclerostin on the regulation of glucose metabolism through direct actions on pancreatic cells.*

7. Master Program MU-COM 05/01/2018-04/31/2019 0.0 calendar

Marian University  **$10,000 direct costs/yr**

**Role: PI**

*This grant provided funds to support the thesis research work of two master students.*

8. Faculty Development Award 05/01/2018-12/31/2018 0.0 calendar

Marian University (\*\*\*\*, Hum) **$5,000 direct costs/yr**

**Role: PI**

Title: "Inhibition of Notch receptor 3 in multiple myeloma ". *This application aimed to investigate the effects of inhibiting Notch receptor 3 on multiple myeloma bone disease.*

9. Brian D. Novis Jr Award 01/01/2017-12/31/2018 1.2 calendar

International Myeloma Foundation **$50,000 direct costs/yr**

**Role: PI**

Title: "Bone/bone marrow-targeted inhibition of Notch signaling in combination with glucocorticoid therapy as a novel approach to treat multiple myeloma." *This application investigated the efficacy of pharmacologic inhibition of Notch signaling in MM growth, muscle weakness, and bone disease.*

10. PI12/615 01/01/2013-01/31/2017 0.0 calendar

Instituto de Salud Carlos III (Riancho) **€110,000 direct costs/year/year**

**Role: co-I**

Title: "DNA methylation: role as a pathogenic factor and biomarker in bone metabolism disorders.". *This proposal aimed to determine whether changes in DNA methylation can be used as biomarkers to predict or diagnose bone metabolism disorders.*

11. Near Miss 01/13-15-01/13/2016 1.8 calendar

IU Melvin and Bren Simon Cancer Center (Roodman)  **$100,000 direct costs/yr**

**Role: key personnel**

Title: "Musculoskeletal Effects of Cancer in Bone." *This proposal aimed to determine the mechanisms responsible for the increased tumor growth, bone destruction, muscle dysfunction, and debilitating bone pain that result from interactions between osteocytes and tumor cells when cancer metastasizes to bone.*

12. Sevgi & Gideon Rodan Fellowship01/01/2014-12/31/2015 1.2 calendar

International Bone and Mineral Research Society **$40,000 direct costs/yr**

**Role: PI**

Title: "Role of osteocytes in multiple myeloma bone disease." Role: **PI**. *This proposal explored the role of Sclerostin produced by osteocytes in inhibiting bone formation associated with multiple myeloma bone disease.*

13. Pilot Project Award 04/01/2013-12/31/2014 0.0 calendar

Indiana Clinical and Translational Science Institute (Roodman) **$40,000 direct costs/yr**

**Role: key personnel**

Title: “Role of osteocytes in multiple myeloma." *This grant tested the hypothesis that osteocytes contribute to generating a microenvironment conducive to tumor growth and bone destruction in multiple myeloma.*

14. PI09/0539 01/01/2010-01/31/2012 12 calendar

Instituto de Salud Carlos III (Riancho)  **€100,000 direct costs/yr**

**Role: key personnel**

Title: “Role of epigenetic mechanisms in common skeletal diseases" *This proposal investigated the role of DNA methylation in regulating key genes involved in bone remodeling and the development and progression of common skeletal diseases.*

**15. Pilot Project Award** 01/01/10- 12/31/2010 0.0 calendar

Fundacion Marques de Valdecilla **€5,000 direct costs/yr**

**Role: PI**

Title: "Role of DNA methylation in the regulation of gene expression in bone metabolism genes." *This application investigated the contribution of DNA methylation to the regulation of Sclerostin production by osteocytes.*

16. Pilot Project Award 01/01/09-12/31/2009 0.0 calendar

SEIOMM-Amgen (Riancho, \*\*\*\*) **€10,000 direct costs/yr**

**Role: co-PI**

Title: "Analysis of RANKL and OPG gene expression and DNA methylation in human bone tissue and primary osteoblasts." *This project aimed to understand the epigenetic regulation of osteoclastogenesis by modulation of the pro-osteoclastogenic cytokine Rankl and the anti-osteoclastogenic cytokine Opg.*

**E. Publications**

Please refer to this packet's "*Publications Section*" for specific details. In brief, Dr. \*\*\*\* has published 56 peer-reviewed manuscripts in his field of study, 25 published since he was appointed Faculty in 2017, with 13 as the corresponding or last author. Since 2017, his manuscripts have 1879 citations (Google Scholar 7/18/22). ResearchGate indicates a top score of 36.99, which is higher than 95% of ReearchGate members (**Fig. 1** and **2**).

**F. Patents**

Notch signaling and bone diseases.

Submitted: 08/2/18. Published 12/20. Status: Approval pending.

Inventors: **\*\*\*\* \*\*\*\***, G. David Roodman, Teresita Bellido, Frank H. Ebetino, Robert Boeckman

**G. Presentations and Seminars**

Since being appointed Faculty in 2017, Dr. \*\*\*\* has been invited to give lectures and chaired multiple sessions at prestigious institutions and national and international conferences. Moreover, his research has been presented by him or by members of his laboratory at several venues from the podium or as a poster. A summary of presentations and seminars by Dr. \*\*\*\* is shown in **Table 2**.

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| --- | --- | --- |
| **Type** | **Total** | **Since UAMS appointment** |
| Invited lectures | 16 | 10 |
| Oral presentations | 14 | 5 |
| Poster presentations | 23 | 11 |
| Chaired sessions | 8 | 4 |

**Table 2**. Summary of Dr. \*\*\*\*'s Presentations and Seminars since appointment as Assistant Professor (Indiana University, 2017-2020, UAMS, 2020-2022).

**G1. Invited lectures**

**International**

1. "Rankl-Rank signaling: NF-KB and other mediators" 2012

Advances in Osteoimmunology Course,

Universidad Autonoma de Madrid, Madrid, Spain

1. "Using 3-D Cell Culture for In vitro/Ex vivo Approaches to Study 2018

Communication Among Bone/Bone Marrow Cells

ASBMR annual meeting

Session: In vitro 3D Cultures to Reproduce the Bone Marrow Niche session

Montreal, Canada.

1. “Investigation at International Research Centers” 2019

SEIOMM annual meeting

Girona, Spain

1. “Osteocytes, bone, and cancer” 2019

SEIOMM annual meeting

Girona, Spain

1. “Models for cellular and tissue cultures” 2020

AAOMM. Metodologías multiescala de aplicación en Osteología

Argentina

1. “Molecular mechanisms of PTH in bone” 2021

Bone Site

Madrid, Spain

1. "Notch signaling in multiple myeloma disease: a rational target" 2022

Multiple Myeloma and Related Malignancies-6th Edition

Bary, Italy

1. "Osteocytes as Part of the Bone/Bone Marrow Niche" 2023

ASBMR Annual meeting Symposium: "Osteocytes in Bone Health and

Disease and as Therapeutic Target Cells"

Vancouver, Canada

**National**

1. “Other Cells Affecting Tumor Growth in Bone” 2017

Cancer and Bone Society (CABS) annual meeting

Indianapolis, Indiana, US

1. "Targeting osteocytes and their derived factors for the treatment 2018

of multiple myeloma"

University of Pennsylvania

Philadelphia, Pennsylvania, US

1. "Role of osteocytes in tumor growth and bone metabolism in 2020

multiple myeloma"

ASBMR pre-meeting symposium: The seed and Soil: therapeutic targets,

Seattle, Washington, US

1. "The osteocyte as a signaling cell in the tumor bone microenvironment" 2022

Gordon Conference on Bones and Teeth. Tumor microenvironment session

Oxnard, California, US

**Local**

1. "Role of Osteocytes in multiple myeloma bone disease" 2017

Indiana University Melvin and Bren Simon Cancer Center

Tumor Microenvironment and Metastasis program meeting

Indianapolis, Indiana, US

1. "Osteocytes as targets for the treatment of Multiple myeloma" 2019

University of Arkansas Medical School

Little Rock, AR, US

1. "Targeting the tumor Microenvironment in Multiple myeloma" 2021

Hematology/Oncology Research and Publication meeting

Little Rock, Arkansas, US

1. "Tumor microenvironment in multiple myeloma" 2021

Cancer Institute Grand Rounds

Little Rock, Arkansas, US

1. "Targeting the tumor Microenvironment in Multiple myeloma" 2021

Cancer Institute Forum

Little Rock, Arkansas, US

**G3. Abstracts and Presentations**

**Oral Presentations-International** (mentored students)

1. Ferrari A, McAndrews K, Nelson JH, Bell J, Srinivasan V, Ebetino FH, Boeckman FK Jr, Roodman GD, Bellido T, and **\*\*\*\* J**. Disruption of Notch Signaling targeted to the myeloma bone marrow microenvironment simultaneously inhibits tumor growth and prevents bone loss without inducing gut toxicity. SEIOMM annual meeting. Barcelona, Spain, 2019. (Best Oral Basic presentation).
2. Garmilla P, Sañudo C, **\*\*\*\* J**, Pérez-Núñez MI, Sumillera M and Riancho JA. Role of miRNA in common skeletal diseases. 18th SEIOMM meeting. Galicia, Spain, 2014.
3. **\*\*\*\* J**, Pérez-López J, Arozamena J, Bolado-Carrancio A, Sañudo C, Rodriguez-Rey JC and Riancho JA. Demethylation of SOST Promoter as a Model for the Study of its Regulation in Human Bone Cells: Role of BMPs. 17th SEIOMM meeting. Cuenca, Spain, 2012. (Best oral basic communication award)
4. **\*\*\*\* J**, Sañudo C, Sánchez-Verde L, García-Renedo RJ, Arozamena J and Riancho JA. Epigenetic Regulation of Alkaline Phosphatase in Human Cells of the Osteoblastic Lineage. 21st NCVB meeting. Zeist, The Netherlands, 2011. (Young Investigator Award)
5. **\*\*\*\* J**, Arozamena J, Casafont I, García-Renedo RJ, Pascual-Carra MA, Berciano MT, González-Macías J and Riancho JA. Wnt Activity, Osteocytes and Sclerostin Expression in Hip Fractures and Osteoarthritis. 3rd Joint Meeting of the ECTS-IBMS. Athens, Greece, 2011. (European Calcified Tissue Society-ECTS travel award)
6. **\*\*\*\* J**, Arozamena J, Casafont I, García-Renedo RJ, Pascual-Carra MA, Berciano MT, González Macías J and Riancho JA. Study of the Wnt Pathway Activity, Osteocytes and Sclerostin Expression in Hip Fracture. 15th SEIOMM meeting. Salamanca, Spain, 2010.

**Oral Presentations-National** (mentored students)

1. Sabol HM, Amorim T, Ashby C, Halladay D, Anderson J, Cregor M, Sweet M, Nookaew I, Kurihara N, Roodman GD, Bellido T, and **\*\*\*\* J**. Notch3 signaling between myeloma cells and osteocytes in the tumor niche promotes tumor growth and bone destruction. Cancer and Bone Young Investigator Symposium. Virtual, US, 2022. (CABS New Investigator Award).
2. Adhikari M, Sabol HM, Anloague A, Khan S, and **\*\*\*\* J**. Pathological Crosstalk Between Osteocytes and Breast Cancer Cells in Bone Metastasis. Cancer and Bone Young Investigator Symposium. Virtual, US, 2022.
3. Sabol HM, Amorim T, Halladay D, Kurihara N, Anderson J, Cregor M, Roodman GD, Bellido T, and **\*\*\*\* J**. Autocrine and paracrine Notch receptor 3 signaling in the myeloma niche stimulates tumor growth and bone destruction. ASBMR pre-meeting symposium: The Seed and Soil: therapeutic targets. Seattle, US, 2020.
4. **\*\*\*\* J**, Daniel A, Sabol HM, Ucer S, McAndrews K, Nelson J, Sweet M, Robling A, and Bellido T. Osteocytes regulate bone resorption via Sclerostin and Lrp4 signaling through Rankl dependent and independent mechanisms. ASBMR annual meeting. Seattle, US, 2020.
5. Daniel A, Ferrari A, Nelson JH, McAndrews K, Cregor C, Ghazzawi Z, Thompson W, Evans-Molina C, Bellido T, and **\*\*\*\* J**. Bone-derived Sclerostin has endocrine actions in adipocyte precursors and pancreatic beta-cells. ASBMR annual meeting. Orlando, US, 2019.
6. Ferrari A, McAndrews K, Nelson JH, Bell J, Srinivasan V, Ebetino FH, Boeckman FK Jr, Roodman GD, Bellido T, and **\*\*\*\* J**. Disruption of Notch Signaling targeted to the myeloma bone marrow microenvironment simultaneously inhibits tumor growth and prevents bone loss without inducing gut toxicity. ASBMR annual meeting. Orlando, US, 2019. (ASBMR Young Investigator award).
7. Ferrari A, McAndrews K, Nelson JH, Bell J, Srinivasan V, Ebetino FH, Boeckman RK Jr, Roodman GD, Bellido T, and **\*\*\*\* J**. Disruption of Notch Signaling targeted to the myeloma bone marrow microenvironment simultaneously inhibits tumor growth and prevents bone loss without inducing gut toxicity. ORS Musculoskeletal Biology Workshop at Sun Valley, Sun Valley, US, 2019. (Charles Turner Travel Award).
8. **\*\*\*\* J**, Nelson JH, Olson ME, McAndrews K, Atkinson EG, Tu X, and Bellido T. Anabolic PTH Signaling Activates the Canonical Notch Pathway in Osteocytes to Restrain Bone Resorption and Facilitate Bone Gain. ASBMR annual meeting. Denver, US, 2017.
9. **\*\*\*\* J**, Olson ME, Nelson JH, Atkinson EG, McAndrews K, Xiao L, Ebetino FH, Boeckman Jr RK, Roodman GD, and Bellido T. Bone-Targeted Pharmacological Inhibition of Notch Signaling Decreases Resorption and Induces Bone Gain in Skeletally Mature Mice. ASBMR annual meeting. Denver, US, 2017
10. **\*\*\*\* J**, Nelson JH, Olson ME, McAndrews K, Atkinson EG, Tu X, and Bellido T. Anabolic PTH Signaling Activates the Canonical Notch Pathway in Osteocytes to Restrain Bone Resorption and Facilitate Bone Gain. ORS Musculoskeletal Biology Workshop at Sun Valley, Sun Valley, US, 2017. (ORS Alice L. Jee Young Investigator Award).
11. **\*\*\*\* J**, Anderson J, Cregor M, Zhou D, Plotkin LI, Bellido T, and Roodman GD. Genetic Sost Deletion and Pharmacological Inhibition of Sclerostin Prevent Multiple Myeloma-Induced Bone Loss Without Affecting Tumor Growth. American Society of Hematology annual meeting. San Diego, US, 2016. (ASH Achievement Award).
12. **\*\*\*\* J**, Hancock B, McAndrews K, Plotkin LI, and Bellido T. Blockade of the activity of the osteocytic PTH receptor target gene MMP14: a therapeutic tool to prevent bone loss and potentiate bone gain induced by PTH. ASBMR annual meeting. Atlanta, US, 2016.
13. **\*\*\*\* J**, Pacheco-Costa R, Tu X, McAndrews K, Plotkin LI, and Bellido T. The bone anabolic effects of intermittent administration of PTH are independent of Sost/Sclerostin downregulation. ASBMR annual meeting. Atlanta, US, 2016.
14. **\*\*\*\* J**, Anderson J, Cregor M, Zhou D, Plotkin LI, Bellido T, and Roodman GD. Genetic Sost deletion or pharmacological inhibition of Sclerostin prevents bone loss and decreases osteolytic lesions in immunodeficient and immunocompetent preclinical models of multiple myeloma. ASBMR annual meeting. Atlanta, US, 2016. (Most outstanding Translational Abstract Award).
15. Hiasa M, Okui T, **\*\*\*\* J**, Bellido T, Roodman GD, White F, Plotkin LI, Yoneda T. Osteocytes Mediate Bone Pain Through Cell-Cell Communication with Sensory Neurons via Connexin 43. ASBMR annual meeting. Atlanta, US, 2016.
16. **\*\*\*\* J**, Pellegrini GP, Feustel M, McAndrews K, and Bellido T. MMP14 is a novel target of PTH required for osteocytic PTH receptor-driven bone remodeling and mineral apposition. ASBMR annual meeting. Seattle, US, 2015. (ASBMR Young Investigator award).
17. **\*\*\*\* J**, Pellegrini GP, Feustel M, McAndrews K, and Bellido T. MMP14 is a novel target of PTH required for osteocytic PTH receptor-driven bone remodeling and mineral apposition. Sun Valley workshop, Idaho, US, 2015. (Harold M. Frost Young Investigator Award).
18. **\*\*\*\* J**, Anderson J, Mohammad KS, Cregor MD, Plotkin LI, Bellido T, and Roodman GD. Osteocyte-driven osteoclast recruitment in multiple myeloma bone disease. AIMM-ASBMR meeting. Colorado, US, 2015. (John Haddad Young Investigator Award).
19. Tu X, McAndrews K, **\*\*\*\* J**, Olivos N, Ben-awadh A, Kim W, Pacheco-Costa R, Richardson D, Peacock M, Plotkin LI and Bellido T. Osteocytic PTH Receptor is Required for Bone Anabolism Induced by Intermittent PTH Administration but is Dispensable for Bone Resorption and the Loss of Bone Induced by Chronic PTH Elevation. ASBMR annual meeting. Baltimore, US, 2013.

**Oral Presentation-Local/Regional** (mentored students)

1. Sabol HM, Amorim T, Ashby C, Halladay D, Anderson J, Cregor M, Sweet M, Nookaew I, Kurihara N, Roodman GD, Bellido T, and **\*\*\*\* J**. Notch3 signaling between myeloma cells and osteocytes in the tumor niche promotes tumor growth and bone destruction. UAMS Cancer Institute Retreat. Little Rock, US, 2022.
2. Ferrari A, McAndrews K, Nelson JH, Bell J, Srinivasan V, Ebetino FH, Boeckman FK Jr, Roodman GD, Bellido T, **\*\*\*\* J**. Bone-targeted inhibition of Notch signaling decreases tumor burden and prevents bone destruction in a mouse model of established multiple myeloma. Marian University College of Medicine Research Day. Indianapolis, US, 2018.
3. Daniel A, Nelson JH, McAndrews K, Cregor M, Thompson W, Bellido T, and **\*\*\*\* J**. Sclerostin regulates whole-body adipose tissue mass via paracrine and endocrine actions on MSCs. Marian University College of Osteopathic Medicine Research Day. Indianapolis, Indiana, 2018.
4. **\*\*\*\* J**. Role of osteocytes in Multiple Myeloma disease. Muskuloskeletal Research Symposium. Indianapolis, Indiana, US, 2015.

**Poster Presentation-International** \*mentored students

1. Yoneda T, Hiasa M, **\*\*\*\* J**, Allette YM, Ripsch MS, Bellido T, Roodman GD, White F, and Plotkin LI. Contribution of osteocytes to cancer-associated bone pain via connexin43-mediated communications with sensory neurons under an acidic microenvironment. ECTS-IBMS 4th Joint Meeting, Rotterdam, The Netherlands, 2015.
2. **\*\*\*\* J**, Arozamena J, Pérez-Núñez I, Garcés C, Pérez-Aguilar MD, Klein-Nulend J, and Riancho JA. Role of Nitric Oxide in the Mechanical Loading-Induced Decrease of Sclerostin Expression. 17th SEIOMM meeting. Cuenca, Spain, 2012.
3. **\*\*\*\* J**, Arozamena J, Sañudo C, Pascual-Carra MA, Sumillera M, Bonewald L and Riancho JA. CpG Demethylation is Critical for Sclerostin Expression in Human Osteoblastic Cells. 39th ECTS meeting. Stockholm, Sweden, 2012.
4. **\*\*\*\* J**, Sañudo C, Arozamena J, Zarrabeitia MT, Garcés C, and Riancho JA. Analysis of Osteoblastic and Osteocytic Markers During Long-Term Mineralization Culture. 39th ECTS meeting. Stockholm, Sweden, 2012.
5. Delgado Calle J, Arozamena J, García-Renedo RJ, García-Ibarbia C, Pascual-Carra MA, González-Macías J, and Riancho JA. Osteocyte Deficiency in Osteoporotic Patients. 16th SEIOMM meeting. A coruña, Spain, 2011.
6. **\*\*\*\* J**, Sañudo C, Fernández AF, Fraga MF, and Riancho JA. Analysis of RANKL and SOST gene DNA Methylation in Hip Fracture of Osteoporotic and Osteoarthritic Patients. Wellcome Trust. Cambridge, England, 2011.
7. **\*\*\*\* J**, Arozamena J, Sañudo C, Mijares V, and Riancho JA. DNA Methylation at Promoter CpG Rich Sites Regulates Alkaline Phosphatase Expression. 3rd Joint Meeting of the ECTS-IBMS. Athens, Greece, 2011.
8. **\*\*\*\* J**, Sañudo C, and Riancho JA. Analysis of DNA Methylation and Gene Expression in Human Osteoblastic Cells. 14th SEIOMM meeting. Santander, Spain, 2009.

**Poster Presentation-National** \*mentored students

1. Sabol HM, Amorim T, Ashby C, Halladay D, Anderson J, Cregor M, Sweet M, Nookaew I, Kurihara N, Roodman GD, Bellido T, and **\*\*\*\* J**. Notch3 signaling between myeloma cells and osteocytes in the tumor niche promotes tumor growth and bone destruction. American Society for Bone and Mineral Research. Austin, Texas, US, 2022.
2. Adhikari M, Sabol HM, Anloague A, Khan S, and **\*\*\*\* J**. Pathological Crosstalk Between Osteocytes and Breast Cancer Cells in Bone Metastasis. American Society for Bone and Mineral Research. Austin, Texas, US, 2022.
3. Anloague A, Khan S, Roodman GD, Bellido T, and **\*\*\*\* J**. Multiple Myeloma-Derived MIP-1α Regulates Osteocytic RANKL Expression Via Autocrine HMGB1 Signaling In Osteocytes. American Society for Bone and Mineral Research. Austin, Texas, US, 2022.
4. Aric Anloague, Ashley Orr, Kevin McAndrews, Meloney Cregor, Adam Ferrari, William Thompson, Intawat Nookaew, Teresita Bellido, **\*\*\*\* \*\*\*\***. Endocrine actions of Sclerostin increase peripheral white adipose tissue mass through activation of the PI3K/Akt pathway. American Society for Bone and Mineral Research. Austin, Texas, US, 2022.
5. Sabol HM, Amorim T, Ashby C, Halladay D, Anderson J, Cregor M, Sweet M, Nookaew I, Kurihara N, Roodman GD, Bellido T, and **\*\*\*\* J**. Notch3 signaling between myeloma cells and osteocytes in the tumor niche promotes tumor growth and bone destruction. American Association for Cancer Research. Virtual, US, 2022.
6. Adhikari M, Sabol HM, Anloague A, Khan S, and **\*\*\*\* J**. Pathological Crosstalk Between Osteocytes and Breast Cancer Cells in Bone Metastasis. American Association for Cancer Research. Virtual, US, 2022.
7. Amorim T, Ferrari A, Sabol HM, Anderson J, Cregor M, Sweet M, Srinivasan V, Ebetino F, Boeckman R, Roodman GD, Bellido T, and **\*\*\*\* J**. Low doses of the bone-targeted Notch inhibitor BT-GSI exhibit higher anti-myeloma activity and preserve bone compared to unconjugated GSI or zoledronic acid. ASBMR annual meeting. Seattle, US, 2020.
8. Mulcrone P, Petrusca D, **\*\*\*\* J**, and Roodman GD. Osteocyte Vegf-a Contributes to Myeloma-associated Angiogenesis and Is Regulated by Fgf23. ASBMR annual meeting. Seattle, US, 2020.
9. Sabol HM, Amorim T, Halladay D, Kurihara N, Anderson J, Cregor M, Roodman GD, Bellido T, and **\*\*\*\* J**. Autocrine and paracrine Notch receptor 3 signaling in the myeloma niche stimulates tumor growth and bone destruction. ASBMR annual meeting. Seattle, US, 2020.
10. Daniel A, Ferrari A, Nelson JH, McAndrews K, Cregor C, Ghazzawi Z, Thompson W, Evans-Molina C, Bellido T, and **\*\*\*\* J**. Bone-derived Sclerostin has endocrine actions in adipocyte precursors and pancreatic beta-cells. ASBMR annual meeting. Orlando, US, 2019.
11. Mulcrone P, Petrusca DN, Condon KW, **\*\*\*\* J**, and Roodman GD. Direct Interactions between Multiple Myeloma Cells and Osteocytes in the Hypoxic Myeloma Microenvironment Induce a Pro-angiogenic Phenotype in Osteocytes. ASBMR annual meeting. Orlando, US, 2019.
12. Daniel A, Ferrari A, Nelson JH, McAndrews K, Cregor C, Ghazzawi Z, Thompson W, Evans-Molina C, Bellido T, and **\*\*\*\* J**. Bone-derived Sclerostin has endocrine actions in adipocyte precursors and pancreatic beta-cells. ORS Musculoskeletal Biology Workshop at Sun Valley, Sun Valley, US, 2019.
13. Ferrari A, McAndrews K, Nelson JH, Bell J, Srinivasan V, Ebetino FH, Boeckman FK Jr, Roodman GD, Bellido T, and **\*\*\*\* J**. Disruption of Notch Signaling targeted to the myeloma bone marrow microenvironment simultaneously inhibits tumor growth and prevents bone loss without inducing gut toxicity. American Association for Cancer Research annual meeting. Atlanta, US, 2019.
14. Nelson JH, Daniel A, Davis H, McAndrews K, Thompson W, Plotkin L, Robling A, Bellido T, and **\*\*\*\* J**. Sclerostin regulates adipocyte fate and mediates paracrine and endocrine signaling between osteocytes and fat. ASBMR annual meeting. Montreal, Canada, 2018.
15. **\*\*\*\* J**, Kurihara N, Atkinson EG, Nelson JH, Galmarini C, Roodman GD, and Bellido T. Aplidin (Plitidepsin) is a novel anti-myeloma drug with potent anti-resorptive activity mediated by direct effects on osteoclasts. American Society for Bone and Mineral Research annual meeting. Montreal, Canada, 2018.
16. **\*\*\*\* J**, Wu G, Olson ME, McAndrews K, Nelson JH, Daniel AL, Ferrari A, Kurihara N, Atkinson EG, Xiao L, Ebetino FH, Roodman GD, Boeckman RK Jr, and Bellido T. Bone-targeted pharmacological inhibition of notch signaling potentiates PTH-induced bone gain. American Society for Bone and Mineral Research annual meeting. Montreal, Canada, 2018.
17. **\*\*\*\* J**, Atkinson EG, Nelson JH, Kurihara N, Galmarini C, Roodman GC, and Bellido T. Aplidin (Plitidepsin) decreases the viability of MM and osteoblastic cells and suppresses osteoclast differentiation and function. American Society of Hematology annual meeting. Atlanta, US, 2017.
18. **\*\*\*\* J**, Olson ME, Nelson JH, Atkinson EG, McAndrews K, Xiao L, Ebetino FH, Boeckman Jr RK, Roodman GD, and Bellido T. Bone-Targeted Pharmacological Inhibition of Notch Signaling as a novel approach to inhibit myeloma growth and bone destruction. American Society of Hematology annual meeting. Atlanta, US, 2017. (ASBMR Young Investigator Travel Award).
19. Atkinson EG, Bellido T, Roodman GC, Kelley MR, and **\*\*\*\* J**. Selective Pharmacological Inhibition of Notch Receptor 3 Signaling Induces Myeloma Cell Death and Preserves Osteocyte Viability. ASBMR annual meeting. Denver, US, 2017.
20. **\*\*\*\* J**, Anderson J, Cregor MD, Carlesso N, Mohammad KS, Plotkin LI, Bellido T, and Roodman GD. Bidirectional Notch signaling between Multiple myeloma (MM) cells and osteocytes as a potential target to inhibit tumor growth and osteoclast recruitment in MM. American Society of Hematology annual meeting. Orlando, US, 2015.
21. **\*\*\*\* J**, Anderson J, Cregor MD, Mohammad KS, Plotkin LI, Bellido T, and Roodman GD. Bidirectional Notch signaling activated by interactions between multiple myeloma cells and osteocytes drives tumor cell proliferation and osteoclast recruitment. ASBMR annual meeting. Seattle, US, 2015.
22. Pellegrini GG, Cregor MD, McAndrews K, **\*\*\*\* J**, Sato AY, Davis HM, Plotkin LI, Burr D, Weaver C, and Bellido T. Nrf2 mediates gender-specific mechanisms on bone accrual and maintenance. ASBMR annual meeting. Seattle, US, 2015.
23. Sato AY, Cregor MD, Tzeggai J, McAndrews K, **\*\*\*\* J**, Robling AG, Plotkin LI, and Bellido T. Sost/Sclerostin deficiency protects the murine skeleton from glucocorticoid-induced bone loss by inhibiting bone resorption. ASBMR annual meeting. Seattle, US, 2015.
24. Gallant MA, Golz B, Yang H, **\*\*\*\* J**, Bellido T, Voytik-Harbin SL, and Main RP. Validation of a novel in vitro model for the study of osteocyte biology in a 3D mineral-collagen matrix. ASBMR annual meeting. Seattle, US, 2015.
25. Hiasa M, Okui T, Nagata Y, Allette YM, Ripsch MS, **\*\*\*\* J**, Bellido T, Roodman GD, Plotkin LI, White F, and Yoneda T. Osteocytes are an Important Mediator of Bone Pain in Myeloma. ASBMR annual meeting. Seattle, US, 2015.
26. Golz B, Gallant MA, Yang H, **\*\*\*\* J**, Bellido T, Voytik-Harbin SL, and Main RP. Development of a novel in vitro 3D model to investigate osteocyte differentiation and biology. BMES meeting 2015 Annual Meeting, Tampa, Florida, US, 2015.
27. **\*\*\*\* J**, Anderson J, Plotkin LI, Bellido T, and Roodman GD. Notch- and TNFα-Activated Signaling Pathways Mediate Osteocyte Apoptosis Triggered by Multiple Myeloma cells. American Society of Hematology annual meeting. San Francisco, US, 2014. (ASH Achievement Award).
28. **\*\*\*\* J**, Anderson J, Plotkin LI, Roodman GD, and Bellido. Cell-to-cell crosstalk between multiple myeloma cells and osteocytes activates Notch signaling and triggers osteocyte apoptosis. ASBMR annual meeting. Houston, US, 2014.
29. **\*\*\*\* J**, Plotkin LI, Bellido T, and Roodman GD. Interactions between myeloma cells and osteocytes alter osteocytic gene expression: evidence for osteocyte-driven dysregulation of bone remodeling in multiple myeloma. ASBMR annual meeting. Houston, US, 2014.
30. Hiasa M, Nagata Y, **\*\*\*\* J**, Allette JM, Ripsch MS, Bellido T, Roodman GD, White FA, and Yoneda T. Osteocytes directly communicate with sensory neuronal cells via cell-cell networks that are modulated under an acidic microenvironment. ASBMR annual meeting. Houston, US, 2014.
31. **\*\*\*\* J**, Bellido T, and Roodman GD. Direct cell-to-cell interactions between osteocytes and multiple myeloma (MM) cells up-regulate Sost and down-regulate OPG expression in osteocytes: evidence for osteocytic contributions to MM-induced bone disease. American Society of Hematology annual meeting. New Orleans, US, 2013.
32. **\*\*\*\* J**, Tu X, Sato A, Cregor M, McAndrews K, Plotkin LI, and Bellido T. PTH Upregulates RANKL and MMP13 Expression Through Direct Actions on Osteocytes, but MMP13 is Derived from Non-Osteocytic cells. ASBMR annual meeting. Baltimore, US, 2013. (ASBMR Young Investigator Travel Award).
33. **\*\*\*\* J**, Sanudo C, Morante M and Riancho JA. New Tool to Study Human Sclerostin Gene Expression In Vitro. ASBMR annual meeting. Baltimore, US, 2013.
34. **\*\*\*\* J**, Riancho JA and Klein-Nulend. New insights into Human SOST mechanotransduction: Role of nitric oxide. ASBMR annual meeting. Minneapolis, US, 2012.
35. **\*\*\*\* J**, Fernández AF, Zarrabeitia MT, Sañudo C, Pérez-Nuñez MI, Sumillera M, Sainz J, Fraga MF, and Riancho JA. Genome-Wide Mapping of Promoter Methylation in Osteoporotic Bone Tissue. ASBMR annual meeting. Minneapolis, US, 2012.
36. **\*\*\*\* J**, Sañudo C, Fernández AF, García-Renedo RJ, Fraga MF, and Riancho JA. Epigenetic mechanisms modulate the expression of genes controlling osteoclast differentiation. ASBMR annual meeting. San Diego, US, 2011.

**Poster Presentation-Local/Regional** \*mentored students

1. Adhikari M, Sabol HM, Anloague A, Khan S, and **\*\*\*\* J**. Pathological Crosstalk Between Osteocytes and Breast Cancer Cells in Bone Metastasis. UAMS Cancer Institute Retreat. Little Rock, US, 2022.
2. Anloague A, Khan S, Roodman GD, Bellido T, and **\*\*\*\* J**. Multiple Myeloma-Derived MIP-1α Regulates Osteocytic RANKL Expression Via Autocrine HMGB1 Signaling In Osteocytes. UAMS Cancer Institute Retreat. Little Rock, US, 2022.
3. Ferrari A, Nelson JH, McAndrews K, Cregor M, Evans-Molina C, Bellido T, and **\*\*\*\* J**. Bone-derived Sclerostin regulates glucose metabolism via endocrine actions in pancreatic β- cells. Marian University College of Medicine Poster Symposium. Indianapolis, US, 2018. (Best poster presentation Award)
4. Atkinson EG, Bellido T, Roodman GD, Kelley MR, and **\*\*\*\* J**. Selective Pharmacological Inhibition of Notch Receptor 3 Signaling Induces Myeloma Cell Death and Preserves Osteocyte Viability. Indiana University Melvin and Bren Simon Cancer Center Research day. Indianapolis, Indiana, US, 2017. (Best post presentation Award)
5. **\*\*\*\* J**, Hancock B, McAndrews K, Plotkin LI, and Bellido T. Blockade of the activity of the osteocytic PTH receptor target gene MMP14: a therapeutic tool to prevent bone loss and potentiate bone gain induced by PTH. IU Musculoskeletal Symposium, Indianapolis, Indiana, US, 2016.
6. **\*\*\*\* J**, Anderson J, Cregor M, Zhou D, Plotkin LI, Bellido T, and Roodman GD. Genetic Sost deletion or pharmacological inhibition of Sclerostin prevents bone loss and decreases osteolytic lesions in immunodeficient and immunocompetent preclinical models of multiple myeloma. IU Musculoskeletal Symposium, Indianapolis, Indiana, US, 2016.
7. **\*\*\*\* J**, Hancock B, McAndrews K, Plotkin LI, and Bellido T. Blockade of the activity of the osteocytic PTH receptor target gene MMP14: a therapeutic tool to prevent bone loss and potentiate bone gain induced by PTH. VA Research Day, Indianapolis, Indiana, US, 2016.
8. **\*\*\*\* J**, Anderson J, Cregor M, Zhou D, Plotkin LI, Bellido T, and Roodman GD. Genetic Sost deletion or pharmacological inhibition of Sclerostin prevents bone loss and decreases osteolytic lesions in immunodeficient and immunocompetent preclinical models of multiple myeloma. VA Research Day, Indianapolis, Indiana, US, 2016. (Best Basic Research Award)
9. **\*\*\*\* J**, Anderson J, Cregor MD, Mohammad KS, Carlesso N, Plotkin LI, Bellido T, and Roodman GD. Bidirectional Notch signaling activated by interactions between multiple myeloma cells and osteocytes drives tumor cell proliferation and osteoclast recruitment. VA Research Day, Indianapolis, Indiana, US, 2015. (Best Translational Research Award).
10. **\*\*\*\* J**, Anderson J, Cregor MD, Mohammad KS, Carlesso N, Plotkin LI, Bellido T, and Roodman GD. Bidirectional Notch signaling activated by interactions between multiple myeloma cells and osteocytes drives tumor cell proliferation and osteoclast recruitment. VA Research Day, Indianapolis, Indiana, US, 2015. (Best Translational Research Award).

**G7. Chaired sessions**

1. Coordinator of the Young Investigators group of the SEIOMM, Spain 2012-2013

2. Session chair, Concurrent Orals: Bone Tumors and Metastasis II 2017

ASBMR annual meeting, Atlanta, Georgia, US

3. Table Leader: Osteocytes and connexins Table. 2018

ASBMR annual meeting, Montreal, Quebec, Canada

4. Table Leader: Internal Negotiations within your institution 2018

ASBMR annual meeting, Montreal, Quebec, Canada

5. Session chair, Concurrent Orals: Preclinical models: Nutrition and Pharmacology 2018

ASBMR annual meeting, Montreal, Quebec, Canada

6. Session chair, Concurrent Orals: Bone Marrow Microenvironment and Niches 2020

ASBMR annual meeting, Seattle, US

7. Session chair, Novel therapies to target the bone marrow niche in cancer. 2021

AIMM/ASBMR meeting, Aspen, US

8. Table Leader: Cancer Institute Science Fair Symposium 2022

Little Rock Arkansas, US

9. Session moderator, How to be an effective mentor, ASBMR Webinar 2022

10. Session chair, Emerging Therapies for Bone and Joint Disease. 2022

ASBMR annual meeting, Austin, TX, US

**H. Editorial Work**

Dr. \*\*\*\* serves on editorial boards of cancer and musculoskeletal science journals, as the Osteocyte Section Editor for Current Osteoporosis Reports, and is the guest co-editor of a Special Journal Issue in Frontiers Oncology. Dr. \*\*\*\* regularly reviews for a wide range of journals, including Nature Communications, JCI Insight, PLOS Biology, Journal of Bone and Mineral Research, and Cancers. Moreover, Dr. \*\*\*\* serves as an ad-hoc and standing member of national and international scientific peer review committees (**Table 3**).

|  |  |  |
| --- | --- | --- |
| **Activity** | **Total** | **Since UAMS appointment** |
| Editorial Board | 3 | 2 |
| Guest Journal Editor | 1 | 1 |
| Peer review manuscript | 59 | 28 |
| Peer review grants | 47 | 40 |
| Peer reviewer abstract | 9 | 5 |

**Table 3.** Summary of Dr. \*\*\*\*'s Editorial and Peer Review activities since appointment as Assistant Professor (Indiana University, 2017-2020, UAMS, 2020-2022).

**H1. Editorial Boards**

1. Section Editor, Current Osteoporosis Reports, Osteocyte section 2019-present

2. Editorial board, Osteoporosis and Mineral Metabolism Journal 2021-present

Spanish Society for Bone and Mineral Metabolism (SEIOMM)

3. Youth Editorial Board, Journal of Cancer Treatment and Metastasis 2021-present

**H2. Guest Journal Editor**

Co-editor, Frontiers of Oncology 2021-present

Co-editors: Carolina Schinke, Niels Weinhold

Special issue: The role of the bone marrow microenvironment in Multiple Myeloma evolution and therapy.

**H3. Peer review manuscript**

**-Bone biology journals**

Actualizaciones en Osteología (in Spanish) (1)

Bone (IF: 4.39) (4)

Bone reports (IF: 3.73 (1)

Bone Research (IF: 13.56) (1)

Calcified Tissue International (IF: 4.33) (3)

Clinical Reviews in Bone and Mineral Metabolism (IF: 1.21) (2)

Current Osteoporosis reports (IF: 5.09) (1)

Endocrinology (IF: 4.73) (4)

Frontiers in Endocrinology (IF: 5.55) (1)

Journal of Bone and Mineral Metabolism (IF: 2.62) (17)

Journal of Bone and Mineral Research (IF: 6.74) (3)

Journal of Bone and Mineral Research Plus (2)

Journal of Endocrinology (IF: 4.28) (3)

Journal of Rheumatology (IF:4.66) (1)

Osteoporosis International (IF: 4.50) (3)

Revista de Osteoporosis y Metabolismo Mineral (in Spanish) (3)

**-Cancer biology journals**

Blood advances (IF: 5.48) (1)

Cancers (IF: 6.63) (1)

Cancer Biomarkers (IF:3.83) (1)

Cancer Drug Resistance (IF: 2.46) (1)

Expert Opinion on Biological Therapy (IF: 4.38) (1)

Expert Review of Hematology (IF:2.92) (1)

Journal of Cancer Metastasis and Treatment (1)

Oncotargets and Therapy (IF: 3.85) (1)

**-Cell biology journals**

Experimental Cell Research (IF: 3.90 (1)

Frontiers Cell and Developmental Biology (IF: 6.68) (1)

International Journal of Molecular Sciences (IF: 5.54) (3)

Journal of Cellular Biochemistry (IF: 4.42) (1)

Journal of Cellular and Molecular Medicine (IF 5.31) (4)

Molecular Biology of the Cell (IF: 4.13) (1)

Nature Communications (IF:14.19) (1)

e-Life (IF:8.71) (1)

Frontiers in Cell and Development Biology (IF: 6.68) (1)

Forntiers in endocrinology (IF 5.55) (1)

**-Genetics journals**

BMC Medical Genetics (IF: 1.98) (1)

Current Genomics (IF: 2.23) (1)

Frontiers in Genetics (IF: 4.27) (1)

**-Other journals**

Bioengineered (IF: 3.26) (1)

BMC Musculoskeletal Disorders (IF: 2.52) (1)

Drug Design, Development and Therapy (IF: 4.16) (1)

Expert Opinion on Biological Therapy (IF:4.38) (1)

Expert Opinion (IF:6.64) (1)

Frontiers (IF:4.59) (3)

Frontiers in Bioengineering (IF: 5.89) (1)

Frontiers in Genetics (4.27) (1)

Histology and Histopathology (IF: 2.30) (1)

International J. Environmental Research and Public Health (IF: 3.36) (1)

JCI Insight (IF: 8.31) (1)

Metabolites (IF:4.75) (1)

Molecular and Cellular Biochemistry (IF: 3.39) (1)

Nutrients (IF: 5.42) (1)

Pharmaceuticals (IF:5.67) (1)

PlosBiology (8.02) (1)

PlosOne (IF: 3.24) (1)

Scientific Reports (IF: 4.37) (5)

Stem Cell International (IF: 5.44) (1)

**H4. Peer review grants**

**Grant reviewer-international**

1. Ad-hoc Reviewer for the Sir Charles Hercus Research Fellowship 2016

Health Research Council of New Zealand

2. Ad-hoc Reviewer for Scientific and Technological Research applications 2017

Ministry of Science, Technology, and Innovation of Argentina

3. Ad-hoc Reviewer for the Austrian Science and Russian Science Foundation 2017-2020

4. Standing Reviewer for the SEIOMM pilot and travel grants, Spain 2020-present

5. Ad-hoc Reviewer for the European Commission, Advanced Grants 2021

6. Ad-hoc Blood Cancer UK 2021

7. Ad-hoc US-Israel Binational Science Foundation 2022

8. Ad-hoc United Kingdom Medical Research Council 2022

9. Ad-hoc Czech Science Foundation 2022

**Grant reviewer-national**

1. Standing Reviewer for the EFF Grant Program 2019-present

2. Ad-hoc Reviewer for ASBMR Haddad Awards 2019

3. Ad-hoc Reviewer for Musculoskeletal Research Center at Washington University 2020

4. Ad-hoc Reviewer for the Tumor Microenvironment (TME) study, NIH 2020

5. Ad-hoc Reviewer for the Developmental Therapeutics (DT) study, NIH 2021

6. Ad-hoc Reviewer for the Tumor Microenvironment (TME) study, NIH 2021

7. Standing Reviewer for the Tumor Host Interactions (THI) study, NIH 2022-present

**Grant reviewer-regional and local**

1. Standing Reviewer for the Collaboration in Translational Research 2018-2019

pilot program, Indiana Clinical and Translational Sciences Institute,

Indianapolis, Indiana, US

2. Ad-hoc Reviewer for the Arkansas INBRE, Collaborative Research Grants, 2020

Little Rock, Arkansas, US

3. Ad-hoc Reviewer for the Arkansas Idea Networks of Biomedical Research 2021

Excellence (INBRE), Summer proposals, Little Rock, Arkansas, US

4. Ad-hoc Reviewer for the Winthrop P. Rockefeller Cancer Institute, Pilot 2021-present

Grants, University of Arkansas for Medical Sciences, Little Rock,

Arkansas, US

**H5. Peer review Abstracts**

**National and international Peer reviewer-abstracts**

1. Review board for the SEIOMM annual meeting 2011-present

2. Review board for the ASBMR annual meeting 2017-2018

Bone Tumors and Metastasis category

3. Review board for the ASBMR annual meeting 2020

Bone Interactions with Other Tissues category

4. Chair and Reviewer ASBMR annual meeting 2022

Osteocyte category