**BUDGET JUSTIFICATION**

**A. Senior Personnel:**

**Principal Investigator (PI) (Example name #1):** Funding for 1 summer month is requested for the PI based on their 9-month salary of $86,000. The PI will coordinate the project, advise graduate students, and delegate tasks related to the project. They will train the student research assistant(s), guide the student(s) in manuscript writing, and will write the annual progress reports.

**Co-PI (Example Name #2):** Funding for 1 summer month per year for the duration of the project has been requested for the co-PI based on their 9-month salary of $72,000. The co-PI will help to coordinate the project, advise graduate students, and delegate tasks related to the project. They will help to train the student research assistant(s), guide the student(s) in manuscript writing, and contribute to annual progress reports.

**B. Other Personnel:**

**Graduate Research Assistant (GRA):**The project will support one GRA in each year who will work closely with the PI and co-PI. The GRA will receive a monthly salary of $2,416.67 based on an annual salary of $29,000 based on 20 hrs/wk for 34 wks and 40 hrs/wk for 12 wks (considered full-time). The GRA will work on all aspects of the project, including experimental design, preparing samples, performing experiments, and collecting and analyzing data. The graduate student will also be involved in group meetings related to this project as well as preparing and submitting manuscripts.

**Project Coordinator:** The project will support one Project Coordinator each year who will work closely with the PI and co-PI to manage the project. A starting salary of $50,000 is requested for the project coordinator. This individual will help manage the project, coordinate schedules, assist in data tracking, and manage the social media presence of the project.

*Salary increases have been included for all personnel in years 2 and 3 of the project.*

**C. Fringe Benefits:**

Fringe Benefits are calculated at our proposed rate of 36.5% for faculty, 43% for staff, and 0% for students.

**D. Travel Costs:**

Travel to two domestic conferences and one international conference is planned for the project. In year 1, travel is based on a conference in March to San Diego California. In the second year, travel is based on a conference in Paris, France in September. In the third year, travel is based on a conference in Minneapolis, Minnesota in March. Costs are based on current GSA or State Department rates and are estimated for the PI to attend each conference for 5 days and are broken down in the tables below:

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| **Year 1: Conference 1, San Diego, CA, USA** |
| Airfare | Per diem | Ground transportation | Registration | Lodging | Total |
| $475 | $64.50 per day x 2 days = $129 (75% full rate for 1st and last day of travel)$86 x 3 days = $258 | $100 (Taxi/Uber from and to airport) | $300 | $199 per day x 4 nights =$796 | $2058 |

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| **Year 2: Conference 2, Paris, France** |
| Airfare | Per diem | Ground transportation | Registration | Lodging | Total |
| $1000 | $161x 5 days = $805 | $100 (Taxi/Uber from and to airport) | $300 | $476 per day x 4 nights =$1904 | $4109 |

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| **Year 3: Conference 3, Minneapolis, MN, USA** |
| Airfare | Per diem | Ground transportation | Registration | Lodging | Total |
| $300 | $69 per day x 2 days = $138 (75% full rate for 1st and last day of travel)$92 per day x 3 days = $276 | $50 (Taxi/Uber from and to airport) | $300 | $148 per day x 4 nights =$592 | $1656 |

**G. Other Direct Costs:**

**1. Materials and Supplies:** Funds totaling $26,100 for the duration of the project are requested ($12,600 in year 1, $8,500 in year 2, and $5,000 in year 3). Funds are based on historical costs for items such as primary and cancer cell lines from ATCC, liquid nitrogen, cell culture media, serum, flasks, reagents, gloves, parafilm, and other laboratory supplies.

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| **Year 1 Supplies** |
| Liquid Nitrogen | Airgas | $900 |
| Consumables (gloves, pipette tips, parafilm, ethanol, centrifuge tubes, etc.) | Fisher Scientific | $4000 |
| Serums, media, supplements | ATCC | $500 |
| Various primary/normal cell lines | ATCC | $3000 |
| Various mammalian cancer cell lines | ATCC | $3000 |
| Various cell culture supplies (tissue-treated flasks, cover slips, petri dishes) | Fisher Scientific and ATCC | $1200 |
| **Year 1 total = 12,600** |
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| **Year 2 Supplies** |
| Liquid Nitrogen | Airgas | $900 |
| Consumables (gloves, pipette tips, parafilm, ethanol, centrifuge tubes, etc.) | Fisher Scientific | $4000 |
| Serums, media, supplements | ATCC | $500 |
| Various cell culture supplies (tissue-treated flasks, cover slips, petri dishes) | Fisher Scientific and ATCC | $1200 |
| Dyes for cell staining and imaging  | Fisher Scientific | $1900 |
| **Year 2 total = $8,600** |
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| **Year 3 Supplies** |
| Liquid Nitrogen | Airgas | $900 |
| Consumables (gloves, pipette tips, parafilm, ethanol, centrifuge tubes, etc.) | Fisher Scientific | $3000 |
| Serums, media, supplements | ATCC | $300 |
| Various cell culture supplies (tissue-treated flasks, cover slips, petri dishes) | Fisher Scientific and ATCC | $800 |
| **Year 3 total = $5,000** |

**2. Publication costs:** Costs are estimated at $4,500 per publication based on average costs for open-access journals. One publication is planned in year 2 and another in year 3 of the project.

**3. Consultants:** $15,000 per year is requested for an external advisory board (EAB). The EAB will consist of 5 members which will be paid $1,000 each per year. The project also involves a yearly PI meeting that the EAB will attend and funds from the grant will cover travel expenses for parking, ground transportation, lodging, and meals at an estimated rate of $2,000 per person per meeting. The EAB will provide feedback on the experiments, assist in experimental design, and perform other relevant duties to ensure the success of the project.

**4. Subcontract:** The PIs will work with collaborators at the University of Colorado Boulder. The Boulder team will assist with sample characterization such as microscopy, imaging, and live cell experiments. This includes salaries for the Boulder PIs and student assistants. The CU Boulder subcontract is proposed at $210,600 ($70,200/yr for 3 years). Please see the separate and attached budget and justification.

**5. Computer Software:** Funding for the purchase of Comsol is requested for the project. One license is estimated to initially cost $4,000. To renew the license in years 2 and 3, the cost will be 20% of the purchase price ($800/yr in years 2 and 3). This will total $5,600 for the project period.

**6. Other:** Other costs such as funds for printing and user fees are included in the budget. Printing costs include posters for conferences and research symposiums at a rate of $260/yr ($65/poster for 4 posters a year). User fees for microscopy (Raman, Confocal) are included at a rate of $30/hr for 100 hours per year for a total of $3000 per year for the duration of the project.

**H. Indirect Costs:**

Facilities and Administrative (F&A) costs are calculated at our federally negotiated rate of 49% of modified total direct costs (MTDC). F&A has been calculated by applying the 49% rate described to an MTDC base of $XXX,XXX totaling F&A costs for the project period of $XX,XXX.