

**MATERIALS LICENSE**

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 36, 37, 39, 40, and 70, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations, and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

<p style="text-align: center;">Licensee</p> <p>1. Butler University</p> <p>2. 4600 Sunset Avenue Indianapolis, Indiana 46208</p>	<p>In accordance with letter dated <b>September 1, 2015,</b></p> <p>3. License No. 13-01865-02 is amended in its entirety to read as follows:</p> <p>4. Expiration Date: <b>October 31, 2022</b></p> <p>5. Docket No. 030-00693 Reference No.</p>
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6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
A. Calcium-45	A. Any	A. 4 millicuries
B. Carbon- 14	B. Any	B. 50 millicuries
C. Hydrogen-3	C. Any	C. 50 millicuries
D. Phosphorus-32	D. Any	D. 50 millicuries
E. Phosphorus-33	E. Any	E. 10 millicuries
F. Sulfur-35	F. Any	F. 50 millicuries

9. Authorized Use:  
**A. through F. Research and development as defined in 10 CFR 30.4 and student instruction.**

CONDITIONS

- 10. Licensed material shall be used only at the licensee's facilities located at Butler University, Indianapolis, Indiana, in the Departments of Biology, Chemistry, Physics, and the College of Pharmacy.
- 11. The Radiation Safety Officer (RSO) for this license is Craig W. Barnhart.

**MATERIALS LICENSE  
SUPPLEMENTARY SHEET**License No.  
13-01865-02Docket or Reference No.  
030-00693

Amendment No. 27

12. Licensed material listed in Item 6 above is only authorized for use by, or under the supervision of, the following individuals for the materials and uses indicated:
- | <u>Authorized User</u>    | <u>Material and Use</u>         |
|---------------------------|---------------------------------|
| Katherine Schmid, Ph.D.   | All                             |
| <b>Conrad Hong, Ph.D.</b> | <b>Hydrogen-3 and sulfur-35</b> |
13. Licensed material shall not be used in or on humans except as provided otherwise by specific condition of this license.
14. The licensee shall not use licensed material in field applications where activity is release except as provided otherwise by specific condition of this license.
15. The licensee is authorized to hold radioactive material with a physical half-life of less than or equal to 120 days for decay-in-storage before disposal in ordinary trash provided:
- Before disposal as ordinary trash, the waste shall be surveyed at the container surface with the appropriate survey instrument set on its most sensitive scale and with no interposed shielding to determine that its radioactivity cannot be distinguished from background. All radiation labels shall be removed or obliterated.
  - A record of each such disposal permitted under this license condition shall be retained for three years. The record must include the date of disposal, the date on which the byproduct material was placed in storage, the radionuclides disposed, the survey instrument used, the background dose rate, the dose rate measured at the surface of each waste container, and the name of the individual who performed the disposal.
16. The licensee is authorized to transport licensed material only in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."

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SUPPLEMENTARY SHEET**License No.  
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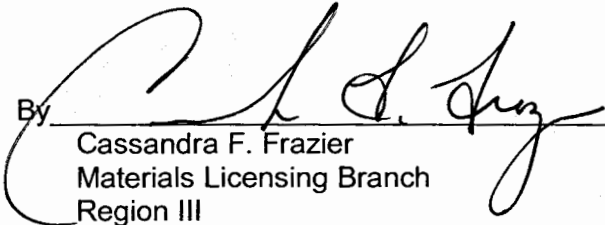
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17. Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures, listed below. The U.S. Nuclear Regulatory Commission's regulations shall govern unless the statements, representations, and procedures in the licensee's application and correspondence are more restrictive than the regulations.
- A. Application dated September 26, 2012 (ML12293A169)
  - B. Letter dated May 1, 2012 (ML12128A446)
  - C. Letter dated April 16, 2015 (ML15113B292)
  - D. Letter dated July 6, 2015 (ML15198A253)
  - E. Letter dated **September 1, 2015** (ML15253A866)

FOR THE U. S. NUCLEAR REGULATORY COMMISSION

Date OCT 30 2015

By

  
Cassandra F. Frazier  
Materials Licensing Branch  
Region III