

## APPLICATION FOR MATERIALS LICENSE -- MEDICAL

**INSTRUCTIONS** - Complete Items 1 through 26 if this is an initial application or an application for renewal of a license. Use supplemental sheets where necessary. Item 26 must be completed on all applications and signed. Retain one copy. Submit original and one copy of entire application to: Director, Office of Nuclear Materials Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555. Upon approval of this application, the applicant will receive a Materials License. An NRC Materials License is issued in accordance with the general requirements contained in Title 10, Code of Federal Regulations, Part 30, and the Licensee is subject to Title 10, Code of Federal Regulations, Parts 19, 20 and 35 and the license fee provision of Title 10, Code of Federal Regulations, Part 170. The license fee category should be stated in Item 26 and the appropriate fee enclosed.

1.a. NAME AND MAILING ADDRESS OF APPLICANT (institution, firm, clinic, physician, etc.) INCLUDE ZIP CODE

1.b. STREET ADDRESS(ES) AT WHICH RADIOACTIVE MATERIAL WILL BE USED (If different from 1.a.) INCLUDE ZIP CODE

TELEPHONE NO.: AREA CODE( ) \_\_\_\_\_

2. PERSON TO CONTACT REGARDING THIS APPLICATION

3. THIS IS AN APPLICATION FOR: (Check appropriate item)

a. ☐ NEW LICENSE

b. ☒ AMENDMENT TO LICENSE NO. \_\_\_\_\_

c. ☐ RENEWAL OF LICENSE NO. \_\_\_\_\_

TELEPHONE NO.: AREA CODE( ) \_\_\_\_\_

4. INDIVIDUAL USERS (Name individuals who will use or directly supervise use of radioactive material. Complete Supplements A and B for each individual.)

5. RADIATION SAFETY OFFICER (RSO) (Name of person designated as radiation safety officer. If other than individual user, complete resume of training and experience as in Supplement A.)

## 6.a. RADIOACTIVE MATERIAL FOR MEDICAL USE

RADIOACTIVE MATERIAL LISTED IN:	ITEMS DESIRED "X"	MAXIMUM POSSESSION LIMITS (In millicuries)	ADDITIONAL ITEMS:	MARK ITEMS DESIRED "X"	MAXIMUM POSSESSION LIMITS (In millicuries)
10 CFR 31.11 FOR IN VITRO STUDIES			IODINE-131 AS IODIDE FOR TREATMENT OF HYPERTHYROIDISM	X	200 mCi
10 CFR 35.100, SCHEDULE A, GROUP I	X	AS NEEDED	PHOSPHORUS-32 AS SOLUBLE PHOSPHATE FOR TREATMENT OF POLYCYTHEMIA VERA, LEUKEMIA AND BONE METASTASES		
10 CFR 35.100, SCHEDULE A, GROUP II	X	AS NEEDED	PHOSPHORUS-32 AS COLLOIDAL CHROMIC PHOSPHATE FOR INTRACAVITARY TREATMENT OF MALIGNANT EFFUSIONS.		
10 CFR 35.100, SCHEDULE A, GROUP III	X	3000 mCi	GOLD-198 AS COLLOID FOR INTRACAVITARY TREATMENT OF MALIGNANT EFFUSIONS.		
10 CFR 35.100, SCHEDULE A, GROUP IV	X	AS NEEDED	IODINE-131 AS IODIDE FOR TREATMENT OF THYROID CARCINOMA	X	1000 mCi
10 CFR 35.100, SCHEDULE A, GROUP V	X	AS NEEDED	XENON-133 AS GAS OR GAS IN SALINE FOR BLOOD FLOW STUDIES AND PULMONARY FUNCTION STUDIES.	X	200 mCi
10 CFR 35.100, SCHEDULE A, GROUP VI					

6.b. RADIOACTIVE MATERIAL FOR USES NOT LISTED IN ITEM 6.a. (Sealed sources up to 3 mCi used for calibration and reference standards are authorized under Section 35.14(d), 10 CFR Part 35, and NEED NOT BE LISTED.)

ELEMENT AND MASS NUMBER	CHEMICAL AND/OR PHYSICAL FORM	MAXIMUM NUMBER OF MILLICURIES OF EACH FORM	DESCRIBE PURPOSE OF USE
I-131, I-123  Tc-99m   8801250171 870729 REG3 LIC30 34-02091-03 PDR	free, MDP, PYP, DTPA, DISIDA	I-131=200mCi I-123=1 mCi 3000 mCi	Thyroid function & imaging, blood & plasma volume Imaging of brain, heart, thyroid, salivary gland, testicle, kidneys, liver/spleen, lung, bone. GI bleed- ing (blood pool). Gastric emptying. GE reflux. Meckel scan. Hepatobili- ary imaging. Cystogram for ureteral reflex

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6b. RADIOACTIVE MATERIAL FOR USES NOT LISTED IN ITEM 6a (continued)

Element and Mass Number	Chemical and/or Physical Form	Maximum Number of Millicuries of Each Form	Describe Purpose of Use
In-111		2 mCi	WBC labelling for inflammatory processes. Cisternography
Xe 133		150 mCi	Lung imaging, blood flow
Ga 67		30 mCi	Inflammation & tumor localization
Th 201		20 mCi	Myocardial perfusion
I-125	labeled serum albumen	100 mCi	Blood volume
Co-57	labeled B <sub>12</sub>	0.005 mCi	Schilling test

# INFORMATION REQUIRED FOR ITEMS 7 THROUGH 23

For Items 7 through 23, check the appropriate box(es) and submit a detailed description of all the requested information. Begin each item on a separate sheet. Identify the item number and the date of the application in the lower right corner of each page. If you indicate that an appendix to the medical licensing guide will be followed, do not submit the pages, but specify the revision number and date of the referenced guide: Regulatory Guide 10.8, Rev. \_\_\_\_\_ Date: \_\_\_\_\_

7. MEDICAL ISOTOPES COMMITTEE		15. GENERAL RULES FOR THE SAFE USE OF RADIOACTIVE MATERIAL <i>(Check One)</i>	
Names and Specialties Attached; and		Appendix G Rules Followed; or	
Duties as in Appendix B; or _____ <i>(Check One)</i>		Equivalent Rules Attached	
Equivalent Duties Attached		16. EMERGENCY PROCEDURES <i>(Check One)</i>	
8. TRAINING AND EXPERIENCE		Appendix H Procedures Followed; or	
Supplements A & B Attached for Each Individual User; and		Equivalent Procedures Attached	
Supplement A Attached for RSO.		17. AREA SURVEY PROCEDURES <i>(Check One)</i>	
9. INSTRUMENTATION <i>(Check One)</i>		Appendix I Procedures Followed; or	
Appendix C Form Attached; or		Equivalent Procedures Attached	
List by Name and Model Number		18. WASTE DISPOSAL <i>(Check One)</i>	
10. CALIBRATION OF INSTRUMENTS		Appendix J Form Attached; or	
Appendix D Procedures Followed for Survey Instruments; or _____ <i>(Check One)</i>		Equivalent Information Attached	
Equivalent Procedures Attached; and		19. THERAPEUTIC USE OF RADIOPHARMACEUTICALS <i>(Check One)</i>	
Appendix D Procedures Followed for Dose Calibrator; or _____ <i>(Check One)</i>		Appendix K Procedures Followed; or	
Equivalent Procedures Attached		Equivalent Procedures Attached	
11. FACILITIES AND EQUIPMENT		20. THERAPEUTIC USE OF SEALED SOURCES	
Description and Diagram Attached		Detailed Information Attached; and	
12. PERSONNEL TRAINING PROGRAM		Appendix L Procedures Followed; or _____ <i>(Check One)</i>	
Description of Training Attached		Equivalent Procedures Attached	
13. PROCEDURES FOR ORDERING AND RECEIVING RADIOACTIVE MATERIAL		21. PROCEDURES AND PRECAUTIONS FOR USE OF RADIOACTIVE GASES (e.g., Xenon - 133)	
Detailed Information Attached		Detailed Information Attached	
14. PROCEDURES FOR SAFELY OPENING PACKAGES CONTAINING RADIOACTIVE MATERIALS <i>(Check One)</i>		22. PROCEDURES AND PRECAUTIONS FOR USE OF RADIOACTIVE MATERIAL IN ANIMALS	
Appendix F Procedures Followed; or		Detailed Information Attached	
Equivalent Procedures Attached		23. PROCEDURES AND PRECAUTIONS FOR USE OF RADIOACTIVE MATERIAL SPECIFIED IN ITEM 6.b	
		Detailed Information Attached	

## 24. PERSONNEL MONITORING DEVICES

TYPE (Check appropriate box)		SUPPLIER	EXCHANGE FREQUENCY
a. WHOLE BODY	FILM		
	TLD		
	OTHER (Specify)		
b. FINGER	FILM		
	TLD		
	OTHER (Specify)		
c. WRIST	FILM		
	TLD		
	OTHER (Specify)		

d. OTHER (Specify)

## 25. FOR PRIVATE PRACTICE APPLICANTS ONLY

a. HOSPITAL AGREEING TO ACCEPT PATIENTS CONTAINING RADIOACTIVE MATERIAL

NAME OF HOSPITAL

b. ATTACH A COPY OF THE AGREEMENT LETTER  
SIGNED BY THE HOSPITAL ADMINISTRATOR.

MAILING ADDRESS

c. WHEN REQUESTING THERAPY PROCEDURES,  
ATTACH A COPY OF RADIATION SAFETY PRECAU-  
TIONS TO BE TAKEN AND LIST AVAILABLE  
RADIATION DETECTION INSTRUMENTS.

CITY

STATE

ZIP CODE

## 26. CERTIFICATE

(This item must be completed by applicant)

The applicant and any official executing this certificate on behalf of the applicant named in Item 1a certify that this application is prepared in conformity with Title 10, Code of Federal Regulations, Parts 30 and 35, and that all information contained herein, including any supplements attached hereto, is true and correct to the best of our knowledge and belief.

a. LICENSE FEE REQUIRED  
(See Section 170.31, 10 CFR 170)

b. APPLICANT OR CERTIFYING OFFICIAL (Signature)

(1) NAME (Type of Print)

Jennifer L. Kersten

(1) LICENSE FEE CATEGORY:

(2) TITLE

M.D.

(2) LICENSE FEE ENCLOSED: \$

c. DATE

3-25-87

## PRIVACY ACT STATEMENT

Pursuant to 5 U.S.C. 552a(e)(3), enacted into law by section 3 of the Privacy Act of 1974 (Public Law 93-579), the following statement is furnished to individuals who supply information to the Nuclear Regulatory Commission on NRC Form 313M. This information is maintained in a system of records designated as NRC-3 and described at 40 Federal Register 45334 (October 1, 1975).

1. **AUTHORITY** Sections 81 and 161(b) of the Atomic Energy Act of 1954, as amended (42 U.S.C. 2111 and 2201(b)).
2. **PRINCIPAL PURPOSE(S)** The information is evaluated by the NRC staff pursuant to the criteria set forth in 10 CFR Parts 30-36 to determine whether the application meets the requirements of the Atomic Energy Act of 1954, as amended, and the Commission's regulations, for the issuance of a radioactive material license or amendment thereof.
3. **ROUTINE USES** The information may be used: (a) to provide records to State health departments for their information and use; and (b) to provide information to Federal, State, and local health officials and other persons in the event of incident or exposure, for their information, investigation, and protection of the public health and safety. The information may also be disclosed to appropriate Federal, State, and local agencies in the event that the information indicates a violation or potential violation of law and in the course of an administrative or judicial proceeding. In addition, this information may be transferred to an appropriate Federal, State, or local agency to the extent relevant and necessary for a NRC decision or to an appropriate Federal agency to the extent relevant and necessary for that agency's decision about you. A copy of the license issued will routinely be placed in the NRC's Public Document Room, 1717 H Street, N.W., Washington, D.C.
4. **WHETHER DISCLOSURE IS MANDATORY OR VOLUNTARY AND EFFECT ON INDIVIDUAL OF NOT PROVIDING INFORMATION** Disclosure of the requested information is voluntary. If the requested information is not furnished, however, the application for radioactive material license, or amendment thereof, will not be processed.
5. **SYSTEM MANAGER(S) AND ADDRESS** Director, Division of Fuel Cycle and Material Safety, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555.

TRAINING AND EXPERIENCE  
AUTHORIZED USER OR RADIATION SAFETY OFFICER

1. NAME OF AUTHORIZED USER OR RADIATION SAFETY OFFICER  Peter Kirchner, M.D.	2. STATE OR TERRITORY IN WHICH LICENSED TO PRACTICE MEDICINE  Iowa
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3. CERTIFICATION		
SPECIALTY BOARD A	CATEGORY B	MONTH AND YEAR CERTIFIED C
Radiology	Diagnostic	June 1983

4. TRAINING RECEIVED IN BASIC RADIOISOTOPE HANDLING TECHNIQUES			
FIELD OF TRAINING A	LOCATION AND DATE(S) OF TRAINING B	TYPE AND LENGTH OF TRAINING	
		LECTURE/ LABORATORY COURSES (Hours) C	SUPERVISED LABORATORY EXPERIENCE (Hours) D
a. RADIATION PHYSICS AND INSTRUMENTATION	January 1980 - May 1984	100	5
b. RADIATION PROTECTION		30	
c. MATHEMATICS PERTAINING TO THE USE AND MEASUREMENT OF RADIOACTIVITY		20	
d. RADIATION BIOLOGY		20	
e. RADIOPHARMACEUTICAL CHEMISTRY		30	5

5. EXPERIENCE WITH RADIATION. (Actual use of Radioisotopes or Equivalent Experience)				
ISOTOPE	MAXIMUM AMOUNT	WHERE EXPERIENCE WAS GAINED	DURATION OF EXPERIENCE	TYPE OF USE
Tc-99m	3 Ci	University of Iowa	January '80-May '84	Diagnostic imaging
In-111	2 mCi	" " "	" "	" "
Xe-133	150 mCi	" " "	" "	" "
Ga-67	30 mCi	" " "	" "	" "
Th-201	20 mCi	" " "	" "	" "
I-123	1 mCi	" " "	" "	" "
I-125	100 mCi	" " "	" "	Blood volume
I-131	200 mCi	" " "	" "	Diag imaging; therapy
				for thyroid CA &
				hyperthyroidism
Co-57	0.005 mCi	" " " Page 5	" "	Schilling test

## PRECEPTOR STATEMENT

Supplement B must be completed by the applicant physician's preceptor. If more than one preceptor is necessary to document experience, obtain a separate statement from each.

## 1. APPLICANT PHYSICIAN'S NAME AND ADDRESS

FULL NAME

Jennifer L. Kersten, M.D.

STREET ADDRESS

CITY

STATE

ZIP CODE

## KEY TO COLUMN C

## PERSONAL PARTICIPATION SHOULD CONSIST OF:

1-Supervised examination of patients to determine the suitability for radioisotope diagnosis and/or treatment and recommendation for prescribed dosage.

2-Collaboration in dose calibration and actual administration of dose to the patient including calculation of the radiation dose, related measurements and plotting of data.

3-Adequate period of training to enable physician to manage radioactive patients and follow patients through diagnosis and/or course of treatment.

## 2. CLINICAL TRAINING AND EXPERIENCE OF ABOVE NAMED PHYSICIAN

ISOTOPE A	CONDITIONS DIAGNOSED OR TREATED B	NUMBER OF CASES INVOLVING PERSONAL PARTICIPATION C	COMMENTS (Additional information or comments may be submitted in duplicate on separate sheets.) D
I-131 I-125	DIAGNOSIS OF THYROID FUNCTION	39	
	DETERMINATION OF BLOOD AND BLOOD PLASMA VOLUME	7	
	LIVER FUNCTION STUDIES		
	FAT ABSORPTION STUDIES		
	KIDNEY FUNCTION STUDIES		
	IN VITRO STUDIES		
OTHER			
I-125	DETECTION OF THROMBOSIS		
I-131	THYROID IMAGING	11	
P-32	EYE TUMOR LOCALIZATION		
Se-75	PANCREAS IMAGING		
Yb-169	CISTERNOGRAPHY		
Xe-133	BLOOD FLOW STUDIES AND PULMONARY FUNCTION STUDIES	72	
OTHER			
Tc-99m	BRAIN IMAGING	90	
	CARDIAC IMAGING	674	
	THYROID IMAGING	95	
	SALIVARY GLAND IMAGING	2	
	BLOOD POOL IMAGING (GI bleed)	10	
	PLACENTA LOCALIZATION		
	LIVER AND SPLEEN IMAGING	263	
	LUNG IMAGING	86	
	BONE IMAGING	466	
OTHER	CONTINUED ON PAGE 6b		

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2. CLINICAL TRAINING AND EXPERIENCE OF ABOVE NAMED PHYSICIAN (Continued)  
(Jennifer Kersten, M.D.)

A	B	C
Isotope	Conditions Diagnosed or Treated	Number of Cases Involving Personal Participation
In-111	Labeled WBC's	6
	Cisternography	5
Ga-67	Inflammatory conditions and tumor localization	46
Tc-99m	Hepatobiliary imaging	41
	Renal imaging	85
	Meckel's diverticulum	3
	Gastric emptying	20
	GE reflux	4
	Testicular imaging	2
Co-57	Schilling test	13

# PRECEPTOR STATEMENT (Continued)

## 2. CLINICAL TRAINING AND EXPERIENCE OF ABOVE NAMED PHYSICIAN (Continued)

ISOTOPE A	CONDITIONS DIAGNOSED OR TREATED B	NUMBER OF CASES INVOLVING PERSONAL PARTICIPATION C	COMMENTS (Additional information or comments may be submitted in duplicate on separate sheets.) D
P-32 (Soluble)	TREATMENT OF POLYCYTHEMIA VERA, LEUKEMIA, AND BONE METASTASES		
P-32 (Colloidal)	INTRACAVITARY TREATMENT		
I-131	TREATMENT OF THYROID CARCINOMA	1	
	TREATMENT OF HYPERTHYROIDISM	24	
Au-198	INTRACAVITARY TREATMENT		
Co-60 or Cs-137	INTERSTITIAL TREATMENT		
	INTRACAVITARY TREATMENT		
I-125 or Ir-192	INTERSTITIAL TREATMENT		
Co-60 or Cs-137	TELETHERAPY TREATMENT		
Sr-90	TREATMENT OF EYE DISEASE		
	RADIOPHARMACEUTICAL PREPARATION		
Mo-99/ Tc-99m	GENERATOR	10	
Sn-113/ In-113m	GENERATOR		
Tc-99m	REAGENT KITS	25	
Other			

## 3. DATES AND TOTAL NUMBER OF HOURS RECEIVED IN CLINICAL RADIOISOTOPE TRAINING

Approximately 700 hours

## 4. THE TRAINING AND EXPERIENCE INDICATED ABOVE WAS OBTAINED UNDER THE SUPERVISION OF:

### a. NAME OF SUPERVISOR

Peter T. Kirchner, M.D.

### b. NAME OF INSTITUTION

University of Iowa Hospitals

### c. MAILING ADDRESS

Department of Radiology

### d. CITY

Iowa City, Iowa 52242

## 5. MATERIALS LICENSE NUMBER(S)

14-029-38-07

## 6. PRECEPTOR'S SIGNATURE

*Peter T. Kirchner*

## 7. PRECEPTOR'S NAME (Please type or print)

Peter T. Kirchner, M.D.

## 8. DATE

13 June 1984