## WISCONSIN ALUMNI RESEARCH FOUNDATION

POST OFFICE BOX 7365

MADISON. WIS. 53707 • TELEPHONE (608) 263-2500 September 12, 1977

Mr. Norman J. Latker
Patent Counsel
Office of the General Counsel
Department of Health, Education,
and Welfare
Washington, D. C. 20201

Dear Mr. Latker:

Re: Institutional Patent Agreement
University of Wisconsin - Department of
Health, Education, and Welfare

This letter and the attachment will comprise the annual report required under the terms and provisions of the above noted agreement for the period from July 1, 1976 through June 30, 1977. Reported are new inventions which have been brought to the Foundation and reported to the Department during the indicated period as well as information regarding inventions for which the Foundation was previously given responsibility under the Institutional Patent Agreement. You will find pertinent information regarding all of these inventions in the attached table.

Very truly yours,

UNIVERSITY OF WISCONSIN

By
Reuben H. Lorenz, Vice President and
Controller

WISCONSIN ALUMNI RESEARCH FOUNDATION

By Howard W. Bremer, Patent Counsel

RHL:HWB:rw Enc.

bc--Prof. Wm. H. Young
Mr. Kent Hill
Mr. Pike & Mr. Woerpel

## UNIVERSITY OF WISCONSIN-WARF DHEW INSTITUTIONAL PATENT AGREEMENT INVENTION REPORT July 1, 1976-June 30, 1977

	•	Invention			
Invention & Grant No.	Inventors	Reported to DHEW	Serial No. Filing Date	Development and Commercial Use	WARF Expenditures (Approx. Estimate)
Method for Reducing Frost Damage of Plants Grant No. HEW GMD 7215-01	Arny, D.C. Lindow, S.E.	9/2/76	710,414 8/2/76	Discussions held with several potential licensees; other discussions pending. Seminar held for representatives of 10 interested companies.	\$ 3,500
Method for Preparing a Reagent for PLT Grant Nos. PHS HL06314 NIH AI00567 NIH AI08439 NIH CA16836	Bach, M.L. Bach, F.H.	6/21/77	697,029 6/17/76	License with Biotest- Serum-Institut, Germany, pending.	\$ 4,000 \$ 2,000 (apportioned expense)
Cytokinin Antago- nist to Plant Growth Hormone NIH Grant No. GM 12395	Bock, R.M. Hecht, S.M. Skoog, F.K. Schmitz, R.Y.	11/8/71	604,173 8/13/75	Option agreement with Dow Chemical Co. terminated by Dow (plant science field). License agreement with Burroughs-Wellcome (mammalian field). A new potential licensee considering scope of interest in invention.	\$ 9,000 \$ 4,500 (apportioned expense)

Invention & Grant No.	Inventors	Invention Reported to DHEW	Serial No. Filing Date	Development and Commercial Use	WARF Expenditures (Approx. Estimate)
24,25-Dihydroxy- cholecalciferol NIH Grant Nos. AM 14881 AM 15512	DeLuca, H.F.	7/6/72	Pat. No. 3715374 issued 2/6/73	Licensed to Upjohn Co., Hoffmann-LaRoche, Roussel Uclaf (France), Leo (Denmark Chugai (Japan), Diamond Shamrock Corp. Other license pending.	
25, 26-Dihydroxy- cholecalciferol NIH Grant No. AM 05800-08	DeLuca, H.F.	11/16/71	Pat. No. 3739001 issued 6/12/73	Same as above.	\$ 835 \$ 5,500 (apportioned expense)
1,24,25-Trihy- droxycholecal- ciferol NIH Grant Nos. AM 14881 AM 15512	DeLuca, H.F.	7/17/73	Pat. No. 3847955 issued 11/12/74	Same as above.	\$ 4,000 \$55,500 (apportioned expense)
5,6-Trans-25- Hydroxychole- calciferol NIH Grant No. AM 15512	DeLuca, H.F. Holick, M.F. Garabedian, M.	2/11/72	Pat. No. 3743661 issued 7/3/73	Same as above.	\$ 1,655 \$ 5,500 (apportioned expense)

Invention & Grant No.	Inventors	Invention Reported to DHEW	Serial No. Filing Date	Development and Commercial Use	WARF Expenditures (Approx. Estimate)
1,25-Dihydroxy- ergocalciferol NIH Grant Nos. 5-PO1-AM-14481 5-PO1-AM-15512	DeLuca, H.F. Jones, G. Schnoes, H.K.	6/13/74	Pat. No. 3880894 issued 4/29/75	Same as above.	\$ 4,216 \$ 6,000 (apportioned expense)
Method of Treating Milk Fever in Dairy Cattle with $1_{\alpha}$ -Hydroxycholecalciferol NIH Grant Nos. 5-PO1-AM-15512 5-PO1-AM-14881	DeLuca, H.F. Jorgensen, N.	6/13/74	Pat. No. 3879548 issued 4/22/75	Same as above.	\$ 1,200 \$ 6,500 (apportioned expense)
1,25-Dihydroxy- cholecalciferol NIH Grant No. AMO 5800-10	DeLuca, H.F. Schnoes, H.K. Holick, M.F.	4/8/71	Pat. No. 3697559 issued 10/10/72	Same as above. (A licensee has filed an NDA in the U.S. on 1,25-dihydroxy-cholecalciferol.)	\$ 8,470 \$10,000 (apportioned expense)

Invention & Grant No.	Inventors	Invention Reported to DHEW	Serial No. Filing Date	Development and Commercial Use	WARF Expenditures (Approx. Estimate)
$1_{\alpha}$ -Hydroxychole-calciferol NIH Grant No. AM 15512	DeLuca, H.F. Schnoes, H.K. Holick, M.F. Semmler, E.	12/2/71	Pat. No. 3741996 issued 6/26/73	Same as above. (A licensee has filed for governmental approval in the United Kingdom & Scandanavian countries on $1_{\alpha}$ -hydroxy-cholecalciferol.)	\$16,763 \$10,000 (apportioned expense)
$1_{\alpha}$ -Hydroxyergo- calciferol NIH Grant No. AM 14881	DeLuca, H.F. Schnoes, H.K. Lam, H.Y.	8/28/74	Pat. No. 3907843 issued 9/23/75	Same as above.	\$ 3,798 \$ 6,500 (apportioned expense)
3-Deoxy- $1_{\alpha}$ - Hydroxychole- calciferol NIH Grant No. AM 14881	DeLuca, H.F. Schnoes, H.K. Lam, H.Y.	8/28/74	Pat. No. 3906014 issued 9/16/75	Same as above.	\$ 6,324 \$ 7,500 (apportioned expense)
Rodenticide NIH Grant No. AM 14881	DeLuca, H.F. Schnoes, H.K. Suttie, J.W. Frank, H.	11/10/75	584,900 6/9/75; Pat. No. 4035493 issued 7/12/77	Same as above.	\$ 4,000

Invention & Grant No.	Inventors	Invention Reported to DHEW	Serial No. Filing Date	Development and Commercial Use	WARF Expenditures (Approx. Estimate)
Derivative of T-2 Toxin & Anguidine HEW GRS Grant in Pharmacy #G066	Ellison, R.A. Kotsonis, F.N.	2/6/76	646,647 1/5/76	Testing results indicate invention probably not viable for licensing.	\$ 1,900
Electromagnetic Flowmeters for Blood or Other Conductive Fluids NIH Grant No. HE-97754	Folts, J.D.	9/29/71	Pat. No. 3739640 issued 6/19/73	No commercial interest found. Probably not licensable because of market size and technological factors.	\$ 1,700
Computer Voice Response Terminal Grant Nos. 5-PO7-RR00249-08 5-SO1-RR05435-12 5-603-PE00196-08 5-PO7-RR00249-09 5-PO7-RR00249-10 O5S 00196-09 5-PO2 CA 14520-03	Friedman, R.B. Cheung, S.J.	6/21/77	739, 582 11/8/76; aband. 7/77. DHEW notified of abandonment 7/1/77	Application abandoned - rights returned to DHEW - lack of novelty.	\$ 1,000

Invention & Grant No.	Inventors	Invention Reported to DHEW	Serial No. Filing Date	Development and Commercial Use	WARF Expenditures (Approx. Estimate)
The Preparation and Use of Europium and Prasedoymium Chelates of 3-Tri-Fluor-acetyl D-Camphor and 3-Perflouro-n-butyl D-Camphor Predoctoral Fellow FO-1-DM-41571	l Goering, H.L. Eikenberry, J. Koermer, G.S.	9/10/71	Pat. No. 3789060 issued 6/19/73	Licensed to Regis Chemical Co. (Compounds being marketed.)  Interference on Patent No. 3789060 settled.	\$14,400
Fluorinated Camp phor Derivatives and Europium and Prasedymium Chelates Thereof Postdoctoral Fellow FO-1-GM-41571	Goering, H.L. Eikenberry, J. Koermer, G.S.	5/23/74	Pat. No. 3915641 issued 10/28/75 (Div.)		
Isolation of a Ca++ Specific Ionophore from Mitochondria NIH Grant Nos. 5-PO1-GM-12847-09 5-PO1-GM-12847-10		2/13/75	No pat, app, filed to date.	Invention awaiting better definition before pat. app. can be filed and commercial interest contacted.	<b>\$ 2</b> 50

Invention & Grant No.	Inventors	Invention Reported to DHEW	Serial No. Filing Date	Development and Commercial Use	WARF Expenditures (Approx. Estimate)
Process for Preparing $1_{\alpha}$ -25-Hydroxy-cholecalciferol (No direct Federal funding - Government given license because of use of material supplied by DeLuca in making	Ochi, K. Nagano, H. Shindo, M. Ishikawa, M. Kaneko, C. DeLuca, H. F.	2/19/76	657, 375 2/12/76; Pat. No. 4022768 issued 5/10/77	Licensed with DeLuca et al inventions supra.	\$ 4,700
invention.)  Compensation of Patient Thickness Variations and Differential X-ray	Mistretta, C. Kelcz, F.	1/15/74	Pat. No. 3854049 issued 12/10/74	Inventors' work has led away from the techniques covered by these pat. applns. Pat. applns. on new technol-	\$ 6,000
Transmission Imaging NIH Fellowship Nos 5-TO1-CA-05104-10 5-TO1-CA-05104-11	O		}	ogy are not being sought because of ruling by NSF when current grant was made. As industrial interest firms re. new techniques WARF hopes that secondary pro-	
Differential X-ray Method and Appar- atus NIH Grant No. 5-TO1-CA-05104-11	Mistretta, C. Kelcz, F.	5/9/75	Pat. No. 3974386 issued 8/10/76	ducts may justify the grant- ing of licenses under these pats. also.	\$22,000

Invention & Grant No.	Inventors	Invention Reported to DHEW	Serial No. Filing Date	Development and Commercial Use	WARF Expenditures (Approx. Estimate)
Multiplexing of Physiological Sensor Signals with Gamma Ray Camera Data Signals Grant No. PHS HRA 05000196-09	Nickles, R.	7/1/75	586,200 6/12/75; Pat. No. 4033335 issued 7/5/77	All U.S. manufacturers of gamma ray cameras have been contacted, with no interest having been expressed.	\$ 6,000
Correction of Data Loss in Gamma Ray Scintillation Cameras Grant No. PHS HRA 05000196-09	Nickles, R.	6/14/76	690, 651 5/27/76 (c-i-p of 586, 200)		
A Three Dimensional Fast-Coincidence Gamma Imaging System DHEW Grant No. 5-E03-PE-00196-07	Nickles, R. Meyer, H.	4/3/73	Pat. No. 3978337 issued 8/31/76	More related work with positron emitters, upon which this invention depends, is necessary to establish a favorable climate for this invention.	\$ 6,500

Invention & Grant No.	Inventors	Invention Reported to DHEW	Serial No. Filing Date	Development and Commercial Use	WARF Expenditures (Approx. Estimate)
Regulation of Insect Reproduction and/or development NIH Grant No. 1-PO6-RR-WO779-01	Norris, D. Bridges, J.	7/3/74	No pat. app. filed to date.	Invention does not appear to be definable for patent purposes.	\$ 300
Antibiotic Production by Mycoplasma Species IIIRP NIH Grant No. 5RO1-A1-10505	Perlman, D. Sylvestre, M. Sakai, T.	9/1/75	623,413 10/17/75	Option agreement entered into with Abbott Laboratories	\$ 9,500
Solid Phase Synthesis of Protected Peptides NIH Grant No. 5-RO1-AM-15507-0	Rich, D. H. Gurwara, S.	12/3/74	575, 478 5/7/75	Work of other scientists in the field may create new interest in this invention. So far no interested company.	\$ 6,500
Solid Phase Synthesis of Protected Peptides NIH Grant No. 5-RO1-AM-15507-0	Rich, D. H. Gurwara, S.	2/3/77	748,948 12/9/76 (Div. of 575,478)		

Invention & Grant No.	Inventors	Invention Reported to DHEW	Serial No. Filing Date	Development and Commercial Use	WARF Expenditures (Approx. Estimate)
Immobilization of Macromolecules on Tissue NIH Grant No. 5-SOS-RR-07098(07	Richardson, T.	1/4/74	472,588 5/23/74	Some additional contact with U.S. companies has occured but no interest expressed.	\$ 4,000
Method for Typing Human Leukocyte Antigens Grant Nos. NIH AI 11576-03 NIH AI 08439 NIH CA 14520	Sheehy, M.J. Sondel, P.M. Bach, F.H. Bach, M.L.	6/21/77	697,545 6/18/76	License with Biotest- Serum-Institut, Germany, pending (see Bach et al invention supra).	\$ 500 \$ 750 (apportioned expense
NIH GM 20130 NIH GM 15422-10 NIH CA 16836-01					·•
Process for Preparing L-dopa (thru microbiological means) NIH Grant Nos. 5-RO1-AM-04874-05-TO1-AM-09688-05-SO1-FR-05456-0	05	9/25/69	Pat. No. 3671397 issued 6/20/72	No commercial interest to date.	\$ 4,000

Invention & Grant No.	Inventors	Invention Reported to DHEW	Serial No. Filing Date	Development and Commercial Use	WARF Expenditures (Approx. Estimate)
Process for Prepar- Sih, ing dl-Strigol NIH Grant No. 2-RO1-AM-4874-12	, C.J.	3/11/74	Pat. No. 3887547 issued 6/3/76	Continuing efforts being made to place invention - no express interest to date.	\$ 2,750
Process for Prepar- Sihing dl-Strigol NIH Grant No. 2-RO1-AM-4874-12	, C.J.	9/1/75	Pat. No. 3972916 issued 8/3/76 (Div.)		
Process for Prepar- Sih ing dl-Strigol NIH Grant No. 2-RO1-AM-4874-12	, C.J.	9/1/75	Pat. No. 3954806 issued 5/4/76 (Div.)		
Glycosides of 2,6- Sih Bis(Hydroxy)-3,7- Dioxabicyclo [3,3,0] Octane Grant No. NIH 2-RO1-AM-09688-11	, C.J.	5/18/76	688,275 5/20/76	Company has done preliminary screening - licensing interest not yet determined.	\$ 8,000

Invention & Grant No.	Inventors	Invention Reported to DHEW	Serial No. Filing Date	Development and Commercial Use		WARF Expenditures (Approx. Estimate)
Prostaglandins and Methods for Pre- paring Same NIH Grant Nos. A955 & B738	Sih, C.J.	1/28/72	221,058 1/26/72; Pat. No. 4031129 issued 6/21/77	Licensed to Miles Laboratories, Alza Corp., Johnson & Johnson, Teijen (Japan), Mitsubishi- Teikoku (Japan)	Not determinable will or may be us	Gross out-of-pocket expenses for Sih inventions \$89,576
Prostaglandins and Methods for Pre- paring Same NIH Grant Nos. A955 & B738	Sih, C.J.	With this report	772,018 2/25/77 (Div. of 221,058)	Same as above.	ble at present time v	
Prostaglandins and Methods for Pre- paring Same NIH Grant Nos. A955 & B738	Sih, C.J.	With this report	772,019 2/25/77 (Div. of 221,058)	Same as above.	time which in rcially.	
3-Substituted Iodo Alkenyl Compounds NIH Grant No. AMO 4874	Sih, C.J.	9/1/75	Pat. No. 3962351 issued 6/8/76	Same as above.	which inventions	

Invention & Grant No.	Inventors	Invention Reported to DHEW	Serial No. Filing Date	Development and Commercial Use		WARF Expenditures (Approx. Estimate)
Prostaglandins and Methods for Pre- paring Same NIH Grant Nos. A955 & B738	Sih, C.J.	1/28/72	221,058 1/26/72; Pat. No. 4031129 issued 6/21/77	Licensed to Miles Laboratories, Alza Corp., Johnson & Johnson, Teijen (Japan), Mitsubishi- Teikoku (Japan)	Not determinable will or may be us	Gross out-of-pocket expenses for Sih inventions \$89,576
Prostaglandins and Methods for Pre- paring Same NIH Grant Nos. A955 & B738	Sih, C.J.	With this report	772,018 2/25/77 (Div. of 221,058)	Same as above.	ble at present time used commercially	
Prostaglandins and Methods for Pre- paring Same NIH Grant Nos. A955 & B738	Sih, C.J.	With this report	772,019 2/25/77 (Div. of 221,058)	Same as above.	which	
3-Substituted Iodo Alkenyl Compounds NIH Grant No. AMO 4874	Sih, C.J.	9/1/75	Pat. No. 3962351 issued 6/8/76	Same as above.	inventions	

Invention & Grant No.	Inventors	Invention Reported to DHEW	Serial No. Filing Date	Development and Commercial Use		WARF Expenditures (Approx. Estimate)
3-Substituted Ioo Alkenyl Compou NIH Grant No. AMO 4874	, J -	9/1/75	Pat. No. 3962352 issued 6/8/76 (Div.)	Same as above.	Not determinable will or may be us	Gross out-of-pocket expenses for Sih inventions \$89,576
3-Substituted Ioo Alkenyl Compou NIH Grant No. AMO 4874	1	9/1/75	Pat. No. 2962353 issued 6/8/76 (Div.)	Same as above.	_ # B _	
Method for Preparing 2-Substited-4-Hydroxy Cyclopentene- 1,3-Diones NIH Grant Nos. AM-9688 AM-4874	Sih, C.J. ut-	9/29/72	Pat. No. 3773622 issued 11/20/73	Same as above.	present time which inventions commercially.	
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Invention & Grant No.	Inventors	Invention Reported to DHEW	Serial No.	Development and Commercial Use	WARF Expenditures (Approx. Estimate)
Process for Stereo- specifically Pre- paring Chiral-2- Substituted-4- Hydroxy-2-Cyclo- penten-1-One NIH Grant No. AM-4874	Sih, C.J. Heather, J.B.	9/29/72	Pat. No. 3968141 issued 7/6/76	Same as above.	Cially.  Gross out-of-pocket expense for Sih inventions \$89,576  Second of the second
Process for Stereo- specifically Pre- paring Chiral-2- Substituted-4- Hydroxy-2-Cyclo- penten-1-One NIH Grant No. AM-4874	Sih, C.J. Heather, J.B.	9/8/76	688,276 5/20/76	Same as above.	present time which ay be used commer-
An Improved Process for the Preparation of Triacetoneamine Grant No. NIH GM16741	Sosnovsky, G. Konieczny, M.	5/11/77	Filing of pat. app. being considered		\$ 750

Invention & Grant No.	Inventors	Invention Reported to DHEW	Serial No. Filing Date	Development and Commercial Use	WARF Expenditures (Approx. Estimate)
Rodenticide NIH Grant No. P-01-AM-14881	Suttie, J.W.	5/28/75	576,347 5/12/75; Pat. No. 4021568 issued 5/3/77	No active commercial interest; efforts to license will continue.	\$ 5,000
Method & Appara- tus for Dialysis NIH Grant No. GM-16133	Updike, S.J.	3/27/73	Pat. No. 3846236 issued 11/5/74	An option to a license has been granted to the German company which presently manufactures 90+% of all kidney dialysis films.	\$11,000
Method & Apparatus for Dialyzing Carbon Dioxide from Blood Plasma NIH Grant No. GM-16133	Updike, S.J.	3/27/73	Pat. No. 3953329 issued 4/27/76	Collaborative work between the German lab and Prof. Updike's lab continues.	
Catalyst Contain- ing Semi-Permea- ble Membrane for Respiratory Gas Exchange by Dialysis NIH Grant No. GM-16133	Updike, S.J.	5/15/74	434, 231 1/17/74 Pat. No. 3996141 issued 12/7/76		

Invention & Grant No.	Inventors	Invention Reported to DHEW	Serial No. Filing Date	Development and Commercial Use	WARF Expenditures (Approx. Estimate)
Method for Immuno logical Determina- tions NIH Grant Nos. GM-16133 GM-70157	-Updike, S.J.	5/15/74	Pat. No. 3970429 issued 7/20/76	Former licenses to Squibb & Ames Labs have been terminated by mutual agreement. License to Union Carbide is being reevaluated by that company, and negotiations are	\$26,000
The Preparation of Dry, Porous Gel Particles Having High Water Regain or Liquid Sampling NIH Grant Nos. GM-16133 GM-70157	Updike, S.J.	1/4/74	Pat. No. 3925017 issued 12/9/75	currently underway with 2 other companies.	
Reagent for Immu- nological Deter- minations NIH Grants He-09922 GM-16133 K3-HE-18184	Updike, S.J. Goodfriend, T.L.	4/29/70	Pat. No. 3793445 issued 2/19/74		

Invention & Grant No.	Inventors	Invention Reported to DHEW	Serial No. Filing Date	Development and Commercial Use		xpenditures Estimate)
				HEW WAIVED RIGHT CE FOUNDATION	<u>ΓS ΤΟ</u>	
Sentization of Radio Thermoluminescence		2/22/74	Pat. No. 3962586 issued	Potential commercial interest exhausted.	\$ 3,600	
in Dosimetry Grade LiF by Simultaneous Annealing and Ultra-			6/8/76			
violet Illumination NIH Grant No. 5-T01-CA05105-11						
NSF Grant No. 74-52-GH 34585						

## INVENTIONS ON WHICH NSF WAIVED RIGHTS TO DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

The Production of Radiation Induced Por Thermally Activated For Current (RITAC) For Devices by Selective Purification of Dielectric Solid Material NIH Grant No. 5-T01-CA-05104 10 & 11 NSF Grant No. GH-34585

Moran, P. R. 3/18/74 Pat. No. Podgorsak, E. 3935457 Fullerton, G. issued Fuller, G. E. 1/27/76

Discussions continuing with potential licensees. A meeting has been set for early Sept. with a new company.

\$ 7,800

Invention & Grant No.	Inventors	Invention Reported to DHEW	Serial No. Filing Date	Development and Commercial Use	WARF Expenditures (Approx. Estimate)
		DHEW INSTIT	TUTIONAL PAT AND	D INVENTIONS FENT AGREEMENT ENT AGREEMENT	
Oxidative Decarboxylation of Carboxylic Acids NIH Grant No. 5-R01-GM-13598 NSF Grant No. 76-1-MPS-03396	Trost, B.M. Tamaru, Y.	3/18/75	578,533 5/19/75 Pat. No. 4007211 issued 2/8/77	Nature of process brought to attention of several companies - no commercial interest expressed.	\$ 2,500
Stereocontrol in Allylic Alkylation Catalyzed by Palladium NIH Grant No. 5-R01-GM-13598 NSF Grant No. 76-1-MPS-03396	Trost, B.M. Verhoeven, T.	2/6/76	646,640 1/5/76	No industry contact to date.	\$ 1,900