

2009 Catalog

NCI Chemical Carcinogen Reference Standards Repository

**Midwest Research Institute
425 Volker Boulevard
Kansas City, Missouri 64110-2299**

Telephone: (816) 753-7600 Ext. 1510, 1523

FAX: (816) 753-3664, 753-8420

www.ncirepository.org

General Information

Introduction

The National Cancer Institute (NCI) contracts with Midwest Research Institute (MRI) to operate a Repository that supplies standard reference-grade compounds for cancer research. The goal of the Repository is to provide well-characterized reference standard materials with corresponding analytical data, and health and safety information to the carcinogenesis research community. MRI operates the Chemical Carcinogen Reference Standards Repository that processes orders for standards of polycyclic aromatic hydrocarbons (PAHs), PAH metabolites, aromatic amine metabolites, and other compounds.

In order to effectively serve the carcinogenesis research community, the Repository procures chemical samples, provide for their safe and stable storage until requested by users, repackages the chemicals, ensures the uniformity of all samples, and ships samples to users with the appropriate analytical documentation and safe handling instructions. All operations are performed in a safe manner and in compliance with current NIH, IATA, OSHA, and DOT requirements.

The equipment and handling procedures used in the program have been selected to ensure the minimum hazard to personnel and the environment. All shipments are made in conformance with transportation regulations so users can safely unpack the materials.

Shipments made from the Repository are sent by commercial air freight. Because stock consists of carcinogens and noncarcinogens, all compounds are regarded as carcinogens and are handled, packaged, and labeled accordingly. The recipient should handle chemicals as carcinogens with proper safety equipment and practices.

The Repository provides an MSDS and Analytical Data Sheet for each compound that includes physical properties, analytical data, hazards, storage, and handling.

Under *Article H, Publication and Publicity of NCI Repository Contract N02-CB-66600*, recipients of compounds from the NCI Repository are required to acknowledge the support of the National Cancer Institute Chemical Carcinogen Reference Standards Repository whenever publicizing the work resulting from use of these NCI supplied compounds in any media by including an acknowledgment statement essentially as follows:

"This project was performed, in part using compound(s) provided by the National Cancer Institute's Chemical Carcinogen Reference Standards Repository operated under contract by Midwest Research Institute, NO. N02-CB-66600."

Please send reprints of published work to:

Ellen Zaika
Cancer Etiology Branch
National Cancer Institute
6130 Executive Blvd. – Room 5071
MSC 7398
Bethesda, MD 20892
E-mail: zaikae@mail.nih.gov

Handbook

A publication entitled “ *Handbook of Analytical and Spectral Data for Polycyclic Aromatic Hydrocarbons, Volume I, Benzo[a]pyrene and Its Metabolites* ” may be obtained through the NCI Repository at Midwest Research Institute. The Handbook contains data for over fifty benzo[a]pyrene metabolites: chemical and physical property data; thin-layer and high performance liquid chromatography; ultraviolet/visible, infrared, and proton and carbon-13 nuclear magnetic resonance spectroscopy; mass spectrometry; and synthesis references.

For more information, contact the Repository at MRI by phone at (816) 753-7600 extension 1510 or 1639 or contact Ms. Carol Blevins by email at cblevins@mriresearch.org.

Catalog Organization

The 70 Repository chemicals are organized into three sections by chemical class, alphabetically, and by CAS number. Chemicals are organized alphabetically within each class. A list of all classes is provided in the Table of Contents.

Terms and Conditions of Sale

All prices listed in this catalog are in U.S. dollars. Every effort will be made to give reasonable notice of price changes, but the Repository reserves the right to change prices without notice. Prices listed do not include government tax or fee. Taxes and fees are not included on the invoice. The purchaser assumes responsibility for any applicable tax. Terms are net 30 days from date of invoice.

Pricing Structure

The cost of Repository samples is separated into three pricing categories; studies funded by an NCI Grant, studies funded by any other U.S. Government grant, and private funding. International orders are included in the private funding category.

Domestic Shipments

Prices listed in this catalog are in U.S. dollars and include shipping and handling. Prices listed do not include government tax or fee. The purchaser assumes responsibility for any applicable tax.

International Shipments

The actual cost of shipping per order will be assessed for shipment outside North America. Repository orders are shipped by Federal Express, Airborne Express/DHL, and Eagle Global Logistics.

Rush Shipments

An additional charge of \$50 per order will be added to any rush shipment requested from the Repository. Rush orders will be processed the same day, if possible, or within 24 hours of receipt of the order.

Vendor Designation

Purchase orders should designate Midwest Research Institute as the vendor/contractor for the source of materials and origin of the resulting invoice.

Purchase Order Mailing Address:

**NCI Chemical Carcinogen Reference Standards Repository
Midwest Research Institute
425 Volker Boulevard
Kansas City, Missouri 64110-2299**

Payment

Terms are net 30 days from invoice date. Payment can be made by check, VISA/Mastercard (US and Canada only), and wire transfer. Checks are payable to Midwest Research Institute.

Remittance Address:

**Midwest Research Institute
P.O. Box 803308
Kansas City, MO 64180-3308**

Chemical Unit Cost

Standard unit amounts have been designated for the chemicals in the Repository inventory. For compounds where the unit amount specified is 5 mg or less, a nominal weight unit is intended, and will depend on the amount of material available as well as the difficulty in weighing small quantities. Unless otherwise requested, orders for intermediate quantities will be filled with multiples of the standard package sizes. Quotations for substantially larger quantities can be provided upon request from Ellen Zaika, Program Administrator, Cancer Etiology Branch, National Cancer Institute; phone 301-435-4474, e-mail: EZ3V@mail.nih.gov.

Delivery

Every effort is made to ensure prompt processing and delivery of orders; however, no responsibility is assumed for delay or nondelivery by the carrier. Normal domestic delivery, for items in stock, is four to ten days from receipt of an order. To avoid storage under improper conditions while in transit, chemicals are not shipped Thursday through Sunday.

Notice Regarding Usage, Toxicity, and Hazards

Repository chemicals are offered for laboratory **EXPERIMENTAL USE ONLY**. They are not for human food, drug, cosmetic, or household use. All compounds will bear the warning "CHEMICAL CARCINOGEN." This does not mean that the sample is a known carcinogen-only that it is intended for use in research involving chemical carcinogens and unless the recipient has information to the contrary, it should be treated as a carcinogen.

WE CANNOT BE CERTAIN OF YOUR APPLICATION OF THE ENCLOSED CHEMICALS. CONSEQUENTLY, WE OFFER NO WARRANTIES REGARDING USE, NOR WILL WE BE RESPONSIBLE FOR ANY LOSS RESULTING FROM USE OF THE CHEMICALS. HOWEVER, IF THE CHEMICALS ARE PROVEN TO BE DEFECTIVE, THE PURCHASE PRICE WILL BE RETURNED TO THE PURCHASER UPON PROOF OF PURCHASE. WE EXPRESSLY DISCLAIM ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Limitation on Consequential Damages and Indemnification

The purchaser's exclusive remedy with respect to chemicals proved to NCI's satisfaction to be defective or nonconforming shall be return of such products to NCI's contractor as provided herein and refund of the purchase price. **NCI AND ITS CONTRACTORS HAVE NO OTHER OBLIGATIONS OR LIABILITIES, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT OR OTHER THEORIES OF LAW, WITH RESPECT TO CHEMICALS ACQUIRED FROM NCI.** In addition, NCI and its contractors specifically disclaim any liability for personal injury or property damages, lost profits or revenues, loss of use of products or any associated equipment, cost of substitute products, facilities or services, downtime, shut-down or slow-down costs, or for any other economic loss and claims of any third party. **THE PURCHASER SHALL INDEMNIFY NCI AND ITS CONTRACTORS** for all losses, damages, and expenses (including attorney's fees and other cost of defending any action) that NCI or its contractors may sustain or incur as a result of any claim by the purchaser, its agents, officers, employees, successors, assigns, customers, or other persons in connection with the use of the products furnished hereunder.

Return Shipments

The Repository will NOT accept return shipments unless prior permission has been given by the Repository and the Repository has provided shipping instructions. It is the Repository's policy to be fair and equitable. We will attempt to cooperate with the purchaser, but the circumstances involving returns are unique to individual purchases and require specific handling. Unidentified returned shipments may be discarded in light of our quality control standards. In the event that a complaint relating to the quality of a product is deemed by us to be valid and justifiable, then, at our option, we will replace the quantity free of charge or issue a credit for the quantity in question. We want researchers to be satisfied with the compounds and to have confidence in them. An analytical data sheet is provided for each chemical and provides estimated purity. A material safety data sheet is provided to advise of special handling precautions. If you encounter specific problems with any of our compounds, please let us know. We will provide technical assistance and information with respect to synthesis techniques, or usable processes, solvents, and analytical techniques. In general, the user should consider all of the Repository compounds as sensitive to light (particularly short wave ultraviolet), heat, and oxidizing agents.

NCI Chemical Carcinogen Reference Standards Repository

Midwest Research Institute
425 Volker Boulevard
Kansas City, Missouri 64110-2299

Telephone: (816) 753-7600, Ext. 1510, 1523
FAX: (816) 753-3664, (816) 753-8420

Online Catalog
www.ncirepository.org

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Order Instructions

All chemical orders from the NCI Chemical Carcinogen Reference Standards Repository should be sent to:

NCI Chemical Carcinogen Reference Standards Repository
Midwest Research Institute
425 Volker Boulevard
Kansas City, Missouri 64110
Telephone: (816)753-7600, Ext. 1510
FAX: (816)753-3664 or (816)753-8420

Order forms are provided on pages 1-2 and 1-3. The order must include:

- **Purchase order indicating Midwest Research Institute as vendor or credit card information**
- **Completed Order Information Form (p. 1-2)**
- **Signed Hazard Acknowledgment Form (p. 1-3)**

FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN A SIGNIFICANT DELAY IN ORDER PROCESSING.

Acknowledgement of Source

Under *Article H, Publication and Publicity* of NCI Repository Contract N02-CB-66600, recipients of compounds from the NCI Repository are now required to acknowledge the support of the National Cancer Institute Chemical Carcinogen Reference Standards Repository whenever publicizing the work resulting from use of these NCI supplied compounds in any media by including an acknowledgment statement essentially as follows:

"This project was performed, in part using compound(s) provided by the National Cancer Institute's Chemical Carcinogen Reference Standards Repository operated under contract by Midwest Research Institute, NO. N02-CB-66600."

Send reprints of published work:

Ellen Zaika
Cancer Etiology Branch
National Cancer Institute
6130 Executive Blvd. – Room 5071
MSC 7398
Bethesda, MD 20892
E-mail: zaikae@mail.nih.gov

Payment

Payment terms: Net 30 Days
Make checks payable to **Midwest Research Institute**
VISA and Mastercard accepted (U.S. and Canada only)

ORDER FORM

- | | |
|--|---|
| 1. Principle Investigator:
Email Address: | 2. Tel:
FAX: |
| 3. Requesting Researcher:
Email Address: | 4. Tel:
FAX: |
| 5. Chemical(s): | |
| NCI MRI
<u>No.</u> <u>No.</u> | No. of Unit
<u>Units</u> <u>Weight (mg)</u> |

6. Brief Description of Intended Use:

7. Primary Source of Funding/Sponsoring Agency:

Grant No: _____

8. Are there other classes of chemicals not listed in our Catalog that you would find useful?
Yes ___ If so, what classes?

9. Shipping Address:

10. Billing Address:

11. Credit Card Payment (Purchase Orders also Accepted)

Card Type: (VISA/ MC) _____

Card No: _____

Name of Cardholder: _____ Exp. ___/___

Cardholder Phone: _____

Under Article H, Publication and Publicity of NCI Repository Contract N02-CB-66600, recipients of compounds from the NCI Repository are now required to acknowledge the support of the National Cancer Institute Chemical Carcinogen Reference Standards Repository whenever publicizing the work resulting from use of these NCI supplied compounds in any media by including an acknowledgment statement essentially as follows: "This project was performed, in part using compound(s) provided by the National Cancer Institute's Chemical Carcinogen Reference Standards Repository operated under contract by Midwest Research Institute, NO. N02-CB-66600."

HAZARD ACKNOWLEDGEMENT

“We acknowledge that the compounds ordered herein are potentially hazardous and accept responsibility for the safe handling, use, and disposal of them by qualified professionals.

The compounds will not be resold and are intended for laboratory experimental use only. They are not to be used as drugs for humans.”

Safety Officer or Principal Investigator

HANDLING WARNING:

Benzo[a]pyrene-7,8-dihydrodiol-9,10-epoxide (BPDE) and related polycyclic aromatic hydrocarbon di-epoxides

This compound is extremely unstable when improperly handled. Failure to follow directions can lead to rapid decomposition, loss of chemical reactivity, and subsequent need to repeat an experiment.

The compound is extremely sensitive to light, moisture, and acidic pH. The only appropriate solvent for preparing stock solutions is tetrahydrofuran (THF) and solutions should be freshly prepared prior to use. An anhydrous, inhibitor-free THF is available commercially and can be used if properly handled under inert gas atmosphere conditions. Otherwise, any THF used should be dry and, if possible, freshly distilled and stored over sodium or molecular sieves to keep it anhydrous. An alternative method for drying a small volume of THF prior to use is as follows:

1. Place a small amount of glass wool into the outlet end of a 10-mL serological pipette.
2. Fill the pipette approximately half full with neutral activity I alumina.
3. Gravity filter a good grade of THF through the pipette, discarding the initial few mL that pass through the filter. Collect the next couple of column volumes for use in preparation of BPDE solutions.
4. Do NOT reuse the alumina column for future preparations of THF. A new column must be made for each use.

The solutions should be stored with an inert gas headspace (dry nitrogen or argon) under refrigerated or frozen temperature conditions, in amber glassware (or at least wrapped in foil) to protect from light. Again note that freshly prepared solutions are preferred; however, if long-term storage is necessary, either refrigerate or freeze, but the **solutions must be kept dry**.

For sample solutions that will be stored for any length of time, add ~ 5% by volume triethylamine (TEA, 99.5%) to the THF before preparing the BPDE solutions.

Incubations in buffered systems are feasible, however, the pH should be no lower than 6.5. Acidic medium catalyzes the hydrolysis of the compound to the benzo[a]pyrene tetrol. Alcoholic solutions will also breakdown to the appropriate ethers.

Under certain circumstances, freshly opened absolute ethanol may possibly be used as a solvent if THF is totally incompatible with the experimental system. The solutions must be prepared immediately after opening the absolute ethanol, since the ethanol will rapidly absorb moisture from the air. They must not be stored for any length of time in ethanol as the compound will be inactivated to an ethyl ether and any water in the ethanol will cause hydrolysis to the inactive tetrol.

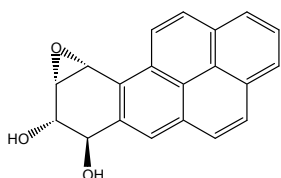
If there are questions concerning the handling of the BPDE material or solutions, please contact the Repository.

NCI Chemical Carcinogen Reference Standards Repository

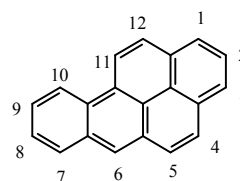
Chemicals by Class

Benzo[*a*]pyrenes

<u>NCI #</u>	<u>MRI#</u>		<u>Unit Size</u>	<u>NCI Grant</u>	<u>Other US Gov. Grant</u>	<u>Private</u>
G — Parent PAHs and Metabolites			5 mg	\$35	\$70	\$105
			10 mg	\$50	\$100	\$150
			100 mg	\$200	\$400	\$600
G0074	077	Benzo[<i>a</i>]pyrene				
K — PAH Conjugates			2 mg	\$75	\$150	\$225
			5 mg	\$150	\$300	\$450
K0343	491	3-Benzo[<i>a</i>]pyrenyl-β- <i>D</i> -glucopyranosiduronic acid				
L — PAH Metabolites			2 mg	\$75	\$150	\$225
			5 mg	\$150	\$300	\$450
L0129	580	Benzo[<i>a</i>]pyrene- <i>trans</i> -4,5-dihydrodiol(±)				
L0113	466	Benzo[<i>a</i>]pyrene- <i>trans</i> -7,8-dihydrodiol(±)				
L0114	467	Benzo[<i>a</i>]pyrene- <i>trans</i> -9,10-dihydrodiol				
L0137	477	Benzo[<i>a</i>]pyrene- <i>r</i> -7, <i>t</i> -8-dihydrodiol- <i>t</i> -9,10-epoxide(±),(anti) (See Handling Warning P. 1-4)				
L0152	478	Benzo[<i>a</i>]pyrene- <i>r</i> -7, <i>t</i> -8-dihydrodiol- <i>c</i> -9,10-epoxide(±),(syn)				
L0115	475	Benzo[<i>a</i>]pyrene-4,5-dihydroepoxide(±)				
L0622	568	Benzo[<i>a</i>]pyrene-7,8-dihydroepoxide(±)				
L0109	483	Benzo[<i>a</i>]pyrene-1,6-dione				
L0110	484	Benzo[<i>a</i>]pyrene-3,6-dione				
L0111	486	Benzo[<i>a</i>]pyrene-6,12-dione				
L0288	487	Benzo[<i>a</i>]pyrene-7,8-dione				



Benzo[*a*]pyrene-*r*-7,*t*-8-dihydrodiol-*t*-9,10-epoxide(±),(anti)



Benzo[*a*]pyrene

Benzo[a]pyrenes

<u>NCI #</u>	<u>MRI#</u>		<u>Unit Size</u>	<u>NCI Grant</u>	<u>Other US Gov. Grant</u>	<u>Private</u>
L — PAH Metabolites continued			2 mg	\$75	\$150	\$225
			5 mg	\$150	\$300	\$450

L0618	471	Benzo[a]pyrene- <i>r-7,t-8,t-9,t-10</i> -tetrahydrotetrol(±)
L0619	472	Benzo[a]pyrene- <i>r-7,t-8,t-9,c-10</i> -tetrahydrotetrol(±)
L0621	583	Benzo[a]pyrene- <i>r-7,t-8,c-9,c-10</i> -tetrahydrotetrol(±)
L0629	473	Benzo[a]pyrene- <i>r-7,t-8,c-9,t-10</i> -tetrahydrotetrol(±)
L0100	452	1-Hydroxybenzo[a]pyrene
L0075	454	3-Hydroxybenzo[a]pyrene
L0105	458	7-Hydroxybenzo[a]pyrene
L0106	460	9-Hydroxybenzo[a]pyrene

<u>NCI #</u>	<u>MRI#</u>		<u>Unit Size</u>	<u>NCI Grant</u>	<u>Other US Gov. Grant</u>	<u>Private</u>
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O — PAH Metabolite: Dihydrodiol Optical Enantiomers

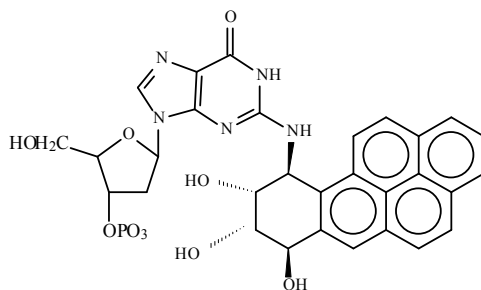
			1 mg	\$275	\$550	\$825
O0468	468	Benzo[a]pyrene-7 <i>R-trans</i> -7,8-dihydrodiol (-)				
O0473	469	Benzo[a]pyrene-7 <i>S-trans</i> -7,8-dihydrodiol (+)				

P — PAH Metabolite: Dihydrodiol Optical Enantiomers

			1 mg	\$350	\$700	\$1,050
P0702	552	Benzo(a)pyrene- <i>trans</i> -7,8-dihydrodiol-9,10-epoxide (anti) (+)				

AD — Adducts (for postlabeling)

			1 aliquot (0.0005 mg)	\$250	\$500	\$750
AD0884	825	7 <i>R</i> ,8 <i>S</i> ,9 <i>S</i> -Trihydroxy-10 <i>S</i> -(<i>N</i> ² -deoxyguanosyl-3'-phosphate)-7,8,9,10,-tetrahydrobenzo[a]pyrene				



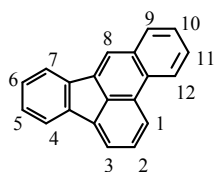
7*R*,8*S*,9*S*-Trihydroxy-10*S*-(*N*²-deoxyguanosyl-3'-phosphate)-
7,8,9,10-tetrahydrobenzo[a]pyrene

Benz[*a*]anthracenes

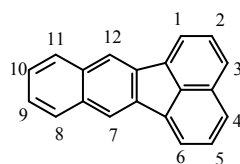
<u>NCI #</u>	<u>MRI#</u>		<u>Unit Size</u>	<u>NCI Grant</u>	<u>Other US Gov. Grant</u>	<u>Private</u>
L — PAH Metabolites			2 mg	\$75	\$150	\$225
			5 mg	\$150	\$300	\$450
L0187	427	Benz[<i>a</i>]anthracene- <i>trans</i> -3,4-dihydrodiol				
L0189	431	Benz[<i>a</i>]anthracene- <i>trans</i> -3,4-dihydrodiol-1,2-epoxide (anti)				
L0154	581	Benz[<i>a</i>]anthracene- <i>trans</i> -8,9-dihydrodiol-10,11-epoxide (anti)				
L0155	432	Benz[<i>a</i>]anthracene- <i>trans</i> -8,9-dihydrodiol-10,11-epoxide (syn)				
L0751	445	7,12-Dimethylbenz[<i>a</i>]anthracene- <i>trans</i> -3,4-dihydrodiol				
L1313	1290	(+/-)-anti-7,12-Dimethylbenz[<i>a</i>]anthracene-3,4-dihydrodiol-1,2-epoxide				
L1312	1289	(+/-)-syn-7,12-Dimethylbenz[<i>a</i>]anthracene-3,4-dihydrodiol-1,2-epoxide				
L0191	416	1-Hydroxybenz[<i>a</i>]anthracene				
L0193	418	3-Hydroxybenz[<i>a</i>]anthracene				

Benzofluoranthenes

L — PAH Metabolites			2 mg	\$75	\$150	\$225
			5 mg	\$150	\$300	\$450
L0798	614	Benzo[<i>b</i>]fluoranthene- <i>trans</i> -9,10-dihydrodiol-11,12-epoxide				
L0746	516	Benzo[<i>k</i>]fluoranthene- <i>trans</i> -8,9-dihydrodiol-10,11-epoxide (anti)				



Benzo[*b*]fluoranthene



Benzo[*k*]fluoranthene

Dibenzanthracenes

<u>NCI #</u>	<u>MRI#</u>		<u>Unit Size</u>	<u>NCI Grant</u>	<u>Other US Gov. Grant</u>	<u>Private</u>
L — PAH Metabolites			2 mg	\$75	\$150	\$225
			5 mg	\$150	\$300	\$450
L0456	530	Dibenz[<i>a,c</i>]anthracene- <i>trans</i> -10,11-dihydrodiol-12,13-epoxide (anti)				

Chrysenes

<u>NCI #</u>	<u>MRI#</u>		<u>Unit Size</u>	<u>NCI Grant</u>	<u>Other US Gov. Grant</u>	<u>Private</u>
L — PAH Metabolites			2 mg	\$75	\$150	\$225
			5 mg	\$150	\$300	\$450
L0500	521	Chrysene- <i>trans</i> -1,2-dihydrodiol-3,4-epoxide (anti)				
L0512	522	Chrysene- <i>trans</i> -1,2-dihydrodiol-3,4-epoxide (syn)				
L0460	528	1-Hydroxychrysene				
L0413	527	3-Hydroxychrysene				
L0870	811	5-Methylchrysene- <i>r-1,t-2,3-c-4</i> -tetrahydrotetrol				
M — Alkial and PAH Metabolites			2 mg	\$100	\$200	\$300
M0866	807	5-Methylchrysene				
M — PAH (special compounds)			2 mg	\$100	\$200	\$300
			5 mg	\$200	\$400	\$600
M1013	955	Benzo[<i>g</i>]chrysene-11,12-dihydrodiol-13,14-epoxide(anti)				

Heterocyclic PAHs

<u>NCI #</u>	<u>MRI#</u>		<u>Unit Size</u>	<u>NCI Grant</u>	<u>Other US Gov. Grant</u>	<u>Private</u>
H — Nitrogen Heterocycles			2 mg	\$45	\$90	\$135
			5 mg	\$75	\$150	\$225
H0258	378	7 <i>H</i> -Dibenzo[<i>c,g</i>]carbazole				

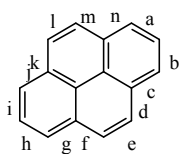
DNA Adducts

AD — Adducts

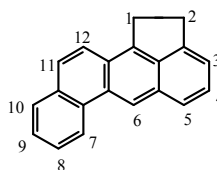
			1 Aliquot	\$250	\$500	\$750
AD0884	825	7 <i>R</i> ,8 <i>S</i> ,9 <i>S</i> -Trihydroxy-10 <i>S</i> -(<i>N</i> ² -deoxyguanosyl- 3'-phosphate)-7,8,9,10-tetrahydrobenzo[<i>a</i>]pyrene				

Other Parent PAHs

<u>NCI #</u>	<u>MRI#</u>		<u>Unit Size</u>	<u>NCI Grant</u>	<u>Other US Gov. Grant</u>	<u>Private</u>
G — Parent PAHs			5 mg	\$35	\$70	\$105
			10 mg	\$50	\$100	\$150
			100 mg	\$200	\$400	\$600
G0502	109	Cholanthrene				
G0062	142	Dibenzo[<i>a,i</i>]pyrene				
G0479	143	Dibenzo[<i>a,l</i>]pyrene				



Pyrene



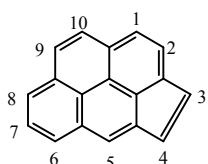
Cholanthrene

Other Alkial PAH Metabolites

<u>NCI #</u>	<u>MRI#</u>		<u>Unit Size</u>	<u>NCI Grant</u>	<u>Other US Gov. Grant</u>	<u>Private</u>
L — PAH Metabolites			2 mg	\$75	\$150	\$225
			5 mg	\$150	\$300	\$450
L0983	925	Benzo[<i>c</i>]phenanthrene-3,4-diol-1,2-epoxide				
L1317	1298	1,2-Dihydroxy-3,4-epoxy-1,2,3,4-tetrahydrophenanthrene				
L1106	1049	1-Hydroxybenzo[<i>c</i>]phenanthrene				
L0723	551	1-Hydroxypyrene				
L — PAH Metabolites (special)			2 mg	\$100	\$200	\$300
			5 mg	\$200	\$400	\$600
L0980	922	(±)- <i>r</i> -11, <i>t</i> -12-Dihydroxy- <i>t</i> -13,14-epoxy-11,12,13,14-tetrahydrodibenzo[<i>a,l</i>]pyrene (anti)				

Other Complex PAHs

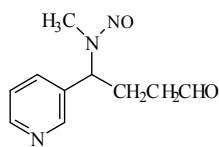
<u>NCI #</u>	<u>MRI#</u>		<u>Unit Size</u>	<u>NCI Grant</u>	<u>Other US Gov. Grant</u>	<u>Private</u>
J — Complex PAH			5 mg	\$75	\$150	\$225
J0471	119	Cyclopenta[<i>c,d</i>]pyrene				
K — Complex PAH Conjugates			2 mg	\$75	\$150	\$225
			5 mg	\$150	\$300	\$450
K1103	1046	1-Pyrenyl- β -D-Glucopyranosiduronic acid				



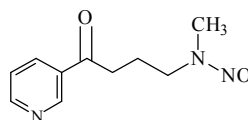
Cyclopenta[*c,d*]pyrene

Nitrosamines and Other Nitroso Compounds

<u>NCI #</u>	<u>MRI#</u>		<u>Unit Size</u>	<u>NCI Grant</u>	<u>Other US Gov. Grant</u>	<u>Private</u>
E — Other Nitroso Compounds			10 mg	\$25	\$50	\$75
			100 mg	\$125	\$250	\$375
E1154	1098	4-(N-Methyl-nitrosamino)-1-(3-pyridyl)-1-butanol (NNAL)				
E0698	366	4-(N-Methyl-N-nitrosamino)-1-(3-pyridyl)-1-butanone (NNK)				



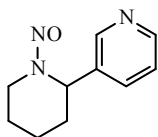
NNA



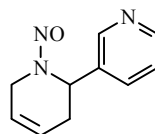
NNK

Nitrosamines and Other Nitroso Compounds

<u>NCI #</u>	<u>MRI#</u>		<u>Unit Size</u>	<u>NCI Grant</u>	<u>Other US Gov. Grant</u>	<u>Private</u>
E — Other Nitroso Compounds continued						
			10 mg	\$25	\$50	\$75
			100 mg	\$125	\$250	\$375
E1061	1003	<i>N</i> -Nitrosoguvacoline				
E0215	347	<i>N</i> -Nitroso- <i>N</i> -methylacetoxymethylamine				
			10 mg	\$40	\$70	\$100
			100 mg	\$145	\$290	\$435
E0840	773	<i>N</i> -Nitrosoanabasine (NAB)				
E0831	776	<i>N</i> -Nitrosoanatabine (NAT)				

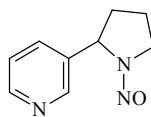


N-Nitrosoanabasine



N-Nitrosoanatabine

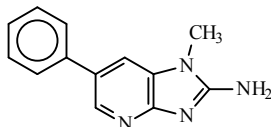
<u>NCI #</u>	<u>MRI#</u>		<u>Unit Size</u>	<u>NCI Grant</u>	<u>Other US Gov. Grant</u>	<u>Private</u>
E — Other Nitroso Compounds (continued)						
			10 mg	\$25	\$50	\$75
			100 mg	\$125	\$250	\$375
E0089	360	<i>N</i> -Nitrosomethylbenzylamine				
E0151	359	<i>N</i> -Nitrosornicotine (NNN)				
E0174	348	<i>N</i> -Nitroso-1-proline				
E0049	340	<i>N</i> -Nitrosomethylurea (NMU)	1 g	\$300	\$600	\$900



NNN

Aromatic Heterocyclic Amines

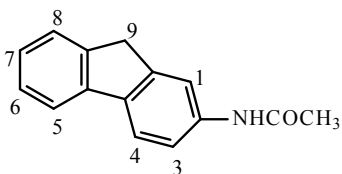
<u>NCI #</u>	<u>MRI#</u>		<u>Unit Size</u>	<u>NCI Grant</u>	<u>Other US Gov. Grant</u>	<u>Private</u>
L — Heterocyclic Amines (special) continued			5 mg	\$300	\$600	\$900
L1096*	1038	2-Hydroxyamino-1-methyl-6-phenyl-imidazo[4,5-b]pyridine				



PhIP

Aromatic Amine Metabolites

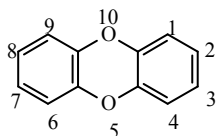
<u>NCI #</u>	<u>MRI#</u>		<u>Unit Size</u>	<u>NCI Grant</u>	<u>Other US Gov. Grant</u>	<u>Private</u>
AM – Aromatic Amines			1 mg	\$45	\$90	\$135
			2 mg	\$75	\$150	\$225
			5 mg	\$125	\$250	\$375
AM0030	005	<i>N</i> -Acetoxy-2-acetylaminofluorene				



2-Acetylaminofluorene

Dioxins

<u>NCI #</u>	<u>MRI#</u>		<u>Unit Size</u>	<u>NCI Grant</u>	<u>Other US Gov. Grant</u>	<u>Private</u>
D0440	147	2,3,7,8-Tetrachlorodibenzo- <i>p</i> -dioxin (TCDD)	1 mg	\$250	\$500	\$750



Dibenzo-*p*-dioxin

Other Organic Chemicals

<u>NCI #</u>	<u>MRI#</u>		<u>Unit Size</u>	<u>NCI Grant</u>	<u>Other US Gov. Grant</u>	<u>Private</u>
F0044	061	Azoxymethane	10 mg	\$30	\$60	\$90
F0040	213	Methylazoxy methanol acetate	100 mg	\$100	\$200	\$300

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Benz[<i>a</i>]anthracene- <i>trans</i> -3,4-dihydrodiol-1,2-epoxide (anti)	431	1-7
Benz[<i>a</i>]anthracene- <i>trans</i> -8,9-dihydrodiol-10,11-epoxide (anti)	581	1-7
Benz[<i>a</i>]anthracene- <i>trans</i> -8,9-dihydrodiol-10,11-epoxide (syn)	432	1-7
Benzo[<i>g</i>]chrysene-11,12-dihydrodiol-13,14-epoxide(anti)	955	1-8
Benzo[<i>b</i>]fluoranthene- <i>trans</i> -9,10-dihydrodiol-11,12-epoxide	614	1-7
Benzo[<i>k</i>]fluoranthene- <i>trans</i> -8,9-dihydrodiol-10,11-epoxide (anti)	516	1-7
Benzo[<i>c</i>]phenanthrene-3,4-diol-1,2-epoxide	925	1-9
Benzo[<i>a</i>]pyrene	077	1-5
Benzo[<i>a</i>]pyrene- <i>trans</i> -4,5-dihydrodiol(±)	580	1-5
Benzo[<i>a</i>]pyrene-7 <i>S</i> - <i>trans</i> -7,8-dihydrodiol (+)	469	1-6
Benzo[<i>a</i>]pyrene-7 <i>R</i> - <i>trans</i> -7,8-dihydrodiol (-)	468	1-6
Benzo[<i>a</i>]pyrene- <i>trans</i> -7,8-dihydrodiol(±)	466	1-5
Benzo[<i>a</i>]pyrene- <i>trans</i> -9,10-dihydrodiol	467	1-5
Benzo[<i>a</i>]pyrene- <i>trans</i> -7,8-dihydrodiol-9,10-epoxide (anti) (+)	552	1-6
Benzo[<i>a</i>]pyrene- <i>r</i> -7, <i>t</i> -8-dihydrodiol- <i>c</i> -9,10-epoxide(±),(syn)	478	1-5
Benzo[<i>a</i>]pyrene- <i>r</i> -7, <i>t</i> -8-dihydrodiol- <i>t</i> -9,10-epoxide(±),(anti)	477	1-5
Benzo[<i>a</i>]pyrene-4,5-dihydroepoxide(±)	475	1-5
Benzo[<i>a</i>]pyrene-7,8-dihydroepoxide(±)	568	1-5
Benzo[<i>a</i>]pyrene-1,6-dione	483	1-5
Benzo[<i>a</i>]pyrene-3,6-dione	484	1-5
Benzo[<i>a</i>]pyrene-6,12-dione	486	1-5
Benzo[<i>a</i>]pyrene-7,8-dione	487	1-5
Benzo[<i>a</i>]pyrene- <i>r</i> -7, <i>t</i> -8, <i>c</i> -9, <i>c</i> -10-tetrahydrotetrol(±)	583	1-6
Benzo[<i>a</i>]pyrene- <i>r</i> -7, <i>t</i> -8, <i>c</i> -9, <i>t</i> -10-tetrahydrotetrol(±)	473	1-6
Benzo[<i>a</i>]pyrene- <i>r</i> -7, <i>t</i> -8, <i>t</i> -9, <i>c</i> -10-tetrahydrotetrol(±)	472	1-6
Benzo[<i>a</i>]pyrene- <i>r</i> -7, <i>t</i> -8, <i>t</i> -9, <i>t</i> -10-tetrahydrotetrol(±)	471	1-6
3-Benzo[<i>a</i>]pyrenyl-β- <i>D</i> -glucopyranosiduronic acid	491	1-5
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7 <i>H</i> -Dibenzo[<i>c,g</i>]carbazole	378	1-8
Dibenzo[<i>a,i</i>]pyrene	142	1-9
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(+/-)-anti-7,12-Dimethylbenz[<i>a</i>]anthracene-3,4-dihydrodiol-1,2-epoxide	1290	1-7
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2-Hydroxyamino-1-methyl-6-phenyl-imidazo[4,5- <i>b</i>]pyridine	1038	1-12
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3-Hydroxybenz[<i>a</i>]anthracene	418	1-7
1-Hydroxybenzo[<i>c</i>]phenanthrene	1049	1-9
1-Hydroxybenzo[<i>a</i>]pyrene	452	1-6
3-Hydroxybenzo[<i>a</i>]pyrene	454	1-6
7-Hydroxybenzo[<i>a</i>]pyrene	458	1-6
9-Hydroxybenzo[<i>a</i>]pyrene	460	1-6
1-Hydroxychrysene	528	1-8
3-Hydroxychrysene	527	1-8
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Methylazoxy methanol acetate	213	1-13
<i>N</i> -Nitrosomethylbenzylamine	360	1-11
5-Methylchrysene	807	1-8
5-Methylchrysene- <i>r</i> -1, <i>t</i> -2,3- <i>c</i> -4-tetrahydrotetrol	811	1-8
4-(<i>N</i> -Methyl-nitrosamino)-1-(3-pyridyl)-1-butanol (NNAL)	1098	1-10
4-(<i>N</i> -Methyl- <i>N</i> -nitrosamino)-1-(3-pyridyl)-1-butanone (NNK)	366	1-10
<i>N</i> -Nitrosoanabasine (NAB)	773	1-11
<i>N</i> -Nitrosoanatabine (NAT)	776	1-11
<i>N</i> -Nitrosoguvacoline	1003	1-11
<i>N</i> -Methylacetoxymethylnitrosamine	347	1-11

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<i>N</i> -Nitrosomethylurea (NMU)	340	1-11
<i>N</i> -Nitrosornicotine (NNN)	359	1-11
<i>N</i> -Nitroso-1-proline	348	1-11
1-Pyrenyl- β -D-Glucopyranosiduronic acid	1046	1-10
2,3,7,8-Tetrachlorodibenzo- <i>p</i> -dioxin (TCDD)	147	1-13
7 <i>R</i> ,8 <i>S</i> ,9 <i>S</i> -Trihydroxy-10 <i>S</i> -(<i>N</i> ² -deoxyguanosyl- 3'-phosphate)-7,8,9,10 -tetrahydrobenzo[<i>a</i>]pyrene	825	1-6

CAS Number

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50-32-8	077	Benzo[<i>a</i>]pyrene	1-5
189-55-9	142	Dibenzo[<i>a,i</i>]pyrene	1-9
191-30-0	143	Dibenzo[<i>a,l</i>]pyrene	1-9
194-59-2	378	7 <i>H</i> -Dibenzo[<i>c,g</i>]carbazole	1-8
00426-58-0	486	Benzo[<i>a</i>]pyrene-6,12-dione	1-5
479-23-2	109	Cholanthrene	1-9
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684-93-5	340	<i>N</i> -Nitrosomethylurea (NMU)	1-11
937-40-6	360	<i>N</i> -Nitrosomethylbenzylamine	1-11
1133-64-8	773	<i>N</i> -Nitrosoanabasine (NAB)	1-11
1746-01-6	147	2,3,7,8-Tetrachlorodibenzo- <i>p</i> -dioxin (TCDD)	1-13
3067-13-8	483	Benzo[<i>a</i>]pyrene-1,6-dione	1-5
3067-14-9	484	Benzo[<i>a</i>]pyrene-3,6-dione	1-5
3697-24-3	807	5-Methylchrysene	1-8
4834-35-9	418	3-Hydroxybenzo[<i>a</i>]anthracene	1-7
5315-79-7	551	1-Hydroxypyrene	1-9
6098-44-8	005	<i>N</i> -Acetoxy-2-acetylaminofluorene	1-12
7519-36-0	348	<i>N</i> -Nitroso-1-proline	1-11
13345-21-6	454	3-Hydroxybenzo[<i>a</i>]pyrene	1-6
13345-23-8	452	1-Hydroxybenzo[<i>a</i>]pyrene	1-6
17573-21	460	9-Hydroxybenzo[<i>a</i>]pyrene	1-6
25843-45-2	61	Azoxymethane	1-13
27208-37-3	119	Cyclopenta[<i>c,d</i>]pyrene	1-10
36504-65-1	568	Benzo[<i>a</i>]pyrene-7,8-dihydroepoxide(±)	1-5
37994-82-4	458	7-Hydroxybenzo[<i>a</i>]pyrene	1-6
050700-50-0	580	Benzo[<i>a</i>]pyrene- <i>trans</i> -4,5-dihydrodiol(±)	1-5
53759-22-1	359	<i>N</i> -Nitrosornicotine (NNN)	1-11
55557-02-3	1003	<i>N</i> -Nitrosoguvacoline	1-11
56856-83-8	347	<i>N</i> -Nitroso- <i>N</i> -methylacetoxymethylamine	1-11
57404-88-3	466	Benzo[<i>a</i>]pyrene- <i>trans</i> -7,8-dihydrodiol(±)	1-5
58886-98-9	467	Benzo[<i>a</i>]pyrene- <i>trans</i> -9,10-dihydrodiol	1-5

<u>CAS No.</u>	<u>MRI No.</u>		<u>Page No.</u>
58917-67-2	477	Benzo[<i>a</i>]pyrene- <i>r</i> -7, <i>t</i> -8-dihydrodiol- <i>t</i> -9,10-epoxide(±),(anti)	1-5
58917-91-2	478	Benzo[<i>a</i>]pyrene- <i>r</i> -7, <i>t</i> -8-dihydrodiol- <i>c</i> -9,10-epoxide(±),(syn)	1-5
60262-81-9	491	3-Benzo[<i>a</i>]pyrenyl-β- <i>D</i> -glucopyranosiduronic acid	1-5
60864-95-1	468	Benzo[<i>a</i>]pyrene-7 <i>R</i> - <i>trans</i> -7,8-dihydrodiol (-)	1-6
60967-89-7	427	Benz[<i>a</i>]anthracene- <i>trans</i> -3,4-dihydrodiol	1-7
61490-69-5	583	Benzo[<i>a</i>]pyrene- <i>r</i> -7, <i>t</i> -8, <i>c</i> -9, <i>c</i> -10-tetrahydrotetrol(±)	1-6
62314-67-4	469	Benzo[<i>a</i>]pyrene-7 <i>S</i> - <i>trans</i> -7,8-dihydrodiol (+)	1-6
62697-16-9	471	Benzo[<i>a</i>]pyrene- <i>r</i> -7, <i>t</i> -8, <i>t</i> -9, <i>t</i> -10-tetrahydrotetrol(±)	1-6
62697-17-0	473	Benzo[<i>a</i>]pyrene- <i>r</i> -7, <i>t</i> -8, <i>c</i> -9, <i>t</i> -10-tetrahydrotetrol(±)	1-6
62697-19-2	472	Benzo[<i>a</i>]pyrene- <i>r</i> -7, <i>t</i> -8, <i>t</i> -9, <i>c</i> -10-tetrahydrotetrol(±)	1-6
63019-38-5	528	1-Hydroxychrysene	1-8
63019-39-6	527	3-Hydroxychrysene	1-8
63038-82-4	581	Benz[<i>a</i>]anthracene- <i>trans</i> -8,9-dihydrodiol-10,11-epoxide (anti)	1-7
63433-26-6	431	Benz[<i>a</i>]anthracene- <i>trans</i> -3,4-dihydrodiol-1,2-epoxide (anti)	1-7
64091-91-4	366	4-(<i>N</i> -Methyl- <i>N</i> -nitrosamino)-1-(3-pyridyl)-1-butanone (NNK)	1-10
64437-52-1	475	Benzo[<i>a</i>]pyrene-4,5-dihydroepoxide(±)	1-5
65199-11-3	487	Benzo[<i>a</i>]pyrene-7,8-dione	1-5
69847-26-3	416	1-Hydroxybenz[<i>a</i>]anthracene	1-7
71267-22-6	776	<i>N</i> -Nitrosoanatabine (NAT)	1-11
77123-24-1	521	Chrysene- <i>trans</i> -1,2-dihydrodiol-3,4-epoxide (anti)	1-8
119479-43-5	955	Benzo[<i>g</i>]chrysene-11,12-dihydrodiol-13,14-epoxide(anti)	1-8
154717-05-2	1046	1-Pyrenyl-β- <i>D</i> -Glucopyranosiduronic acid	1-10