



## Aristolochic Acids

### Key Points



#### Aristolochic Acids

- Known human carcinogens
- Found in certain plants
- Used as herbal medicines

#### Report on Carcinogens Status

*Known to be human carcinogens*

#### What are aristolochic acids?

(Pronounced *a ris-ti lōk-ik as-ids*)

Aristolochic acids are a family of acids found naturally in the plants *Aristolochia* and *Asarum*, which grow throughout the United States and worldwide.

#### How are aristolochic acids used?

Plants containing aristolochic acids are often used as herbal medicines or in other botanical products in the United States and abroad. Aristolochic acids may be found as a contaminant in herbal products used to treat a wide variety of symptoms and diseases, such as arthritis, gout, and inflammation.

#### How are people exposed to aristolochic acids?

Exposure may occur through the intentional or unknowing eating or drinking of herbal or food products that contain aristolochic acids.

In 2001, the U.S. Food and Drug Administration (FDA) advised consumers to stop using any products that may contain aristolochic acids, after seeing an increase in nephropathy, or kidney disease, among users; however, products containing aristolochic acids can still be purchased on the Internet and abroad.

#### What evidence is there that aristolochic acids cause cancer?

##### Human Studies

Studies in humans show high rates of cancers of the urinary bladder or upper urinary tract, among individuals with kidney or renal disease who consumed botanical products containing aristolochic acids.

##### Animal Studies

The findings in humans are supported by laboratory animal studies showing oral exposure to aristolochic acids caused tumors in the forestomach and urinary tracts of various animal species.

##### Mechanistic Studies

There is mechanistic data showing that aristolochic acids are the agents in these products that are causing the cancer in humans and animals.

#### How can I prevent exposure to this botanical?

Do not use botanical products that contain aristolochic acids. For a full list, see the FDA website at <http://www.fda.gov/Food/DietarySupplements/Alerts/ucm095297.htm>

Contact the manufacturer or distributor of a product, if you have any questions about its content.

#### Where do I go for more information?

National Toxicology Program  
<http://ntp.niehs.nih.gov/go/roc12candidates>



The Report on Carcinogens, Twelfth Edition, is prepared by the National Toxicology Program, an interagency group coordinated by the U.S. Department of Health and Human Services. The report identifies agents, substances, mixtures, or exposures in two categories: *known to be a human carcinogen* and *reasonably anticipated to be a human carcinogen*. **The full Report on Carcinogens is available at <http://ntp.niehs.nih.gov/go/roc12>.**

