

**Cesium Chloride: Preventive Medicine for Radioactive Cesium Exposure?****Authors:**

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Abstract:

The clearance of cesium (7440462) from human blood was studied in-vivo. The purpose of the study was to determine if nonradioactive cesium could be used as protection against cesium-137 (10045973) (Cs-137) exposure. Volunteers were given 50 milligrams (mg) to 9 grams (g) **cesium-chloride** (7647178) orally. Blood samples were collected at various times between 1 hour and 1 year after dosing. Whole blood and plasma cesium concentrations were determined. The baseline cesium concentration in whole blood was 4 parts per billion (ppb). Following dosing with 50mg **cesium-chloride**, blood cesium concentrations were 130 parts per million (ppm) at 1 hour, 57ppm at 6 hours, and 40ppm at 8 days. Plasma cesium concentrations were 9ppm after 8 days. Blood cesium concentrations were elevated above the baseline value for 80 days. A 1g dose of **cesium-chloride** produced blood cesium concentrations of 2300ppb after 3 months and 1200ppb at 6 months. **Cesium-chloride** doses of 100mg and 9g produced blood cesium concentrations of 7220 and 80,000mg per liter, respectively. No toxic effects were observed with these high doses. The authors conclude that cesium probably binds to red blood cells. Saturation of these binding sites by nonradioactive cesium may prevent binding of Cs-137. **This suggests that nonradioactive cesium could be used prophylactically to protect against Cs-137 exposure. Because cesium-chloride appears to be nontoxic it could be combined with salt for distribution in the event of widespread Cs-137 exposure, such as from a nuclear reactor accident.**

Keywords:

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[Pharmacodynamics](#)
[Alkali metals](#)
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[Blood samples](#)
[Chemical analysis](#)
[Radiation protection](#)
[Prophylaxis](#)
[Red blood cells](#)
[Humans](#)

CAS Registry Numbers:

[7440-46-2](#)
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[10045-97-3](#)
[7647-17-8](#)

Coden:

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