levels. However, there is no antidote for the sudden side effects by the metal-salen complex compound.

[0019]

The present invention was devised in light of the above-described circumstances and it is an object of the invention to provide a metal-salen complex compound responsive drug, which has an antidotal property capable of neutralizing cytotoxicity of a metal-salen complex compound, and an intra-corporeal behavior control system for the metal-salen complex compound.

[Solution to Problem]

[0020]

As a result of thorough examination in order to achieve the above-described object, the inventor of the present invention has found that the metal-salen complex compound is inactivated by having metal of the metal-salen complex compound bound through a coordinate bond by a metal chelating agent; and even when application of a magnetic field to an affected site tissue is stopped and the metal-salen complex compound circulates systemically, the cytotoxicity effect of the metal-salen complex compound can be suppressed by administering the metal chelating agent.

[0021]

Therefore, in order to achieve the above-described object, the present ~~invention~~disclosure provides a metal-salen complex compound responsive drug that is an antidote containing an effective amount of a metal chelating agent to suppress side effects of the metal-salen complex compound.

[0021A]

Thus in one aspect, there is provided a drug containing a magnetic metal-salen complex compound as a medicinal component and containing a chelating agent for chelating metal of the metal-salen complex compound as a responsive component for suppressing side effects of the metal-salen complex compound, wherein the metal-salen complex compound is localized at an affected site by an external magnetic field applied from outside a body; and when the application of the

external magnetic field is finished, the chelating agent binds to the metal-salen complex compound which is released from the affected site by administering the chelating agent into the body.

[0022]

Moreover, the metal-salen complex compound responsive drug according to the present ~~invention~~disclosure may be an antidote that is a combination of the metal-salen complex compound, which is administered to a human or an animal and then guided to an affected site tissue by a magnetic field applied to the affected site tissue, and an effective amount of the metal chelating agent to suppress side effects of the

metal-salen complex compound, which may be caused when the metal-salen complex compound is released from the magnetic field.

[0023]

An effective ratio of the metal chelating agent for neutralizing cytotoxicity of the metal-salen complex compound is 0.3 μM or more and 50 μM or less or more preferably 7.5 μM or more and 30 μM or less. If the ratio of the metal chelating agent is 0.3 μM, it is difficult to effectively neutralize the cytotoxicity of the metal-salen complex compound; and if the ratio of the metal chelating agent is 50 μM or more, the concentration of the chelating agent becomes excessive and the metal chelating agent becomes no longer effective.

[0024]

Furthermore, the present ~~invention~~disclosure provides a metal-containing anti-tumor agent responsive drug that contains an effective amount of a metal chelating agent to suppress side effects of an anti-tumor agent containing metal.

[0025]

Furthermore, the present ~~invention~~disclosure provides an intra-corporeal behavior control system for a metal-salen complex compound, including: a step of administering a metal-salen complex compound to a human or an animal; a step of externally applying a magnetic field to an affected site tissue and guiding the metal compound to the magnetic-field-applied area; a step of administering an effective amount of a metal chelating agent to suppress side effects of the metal-salen complex compound, which are caused by release of the metal-salen complex compound from the affected site tissue and systemic circulation of the metal-salen complex compound due to cessation or termination of the application of the magnetic field.

[Advantageous Effects of Invention]

[0026]

According to the present invention, it is possible to provide a metal-salen complex compound responsive drug, which has an antidotal property capable of

[CLAIMS]

[Claim 1]

A metal-salen complex compound responsive drug containing an effective amount of a metal chelating agent to suppress side effects of a metal-salen complex compound.

[Claim 2]

The metal-salen complex compound responsive drug according to claim 1, wherein the metal-salen complex compound responsive drug is a combination of the metal-salen complex compound, which is administered to a human or an animal and then guided to an affected site tissue by a magnetic field applied to the affected site tissue, and an effective amount of the metal chelating agent to suppress side effects of the metal-salen complex compound, which may be caused when the metal-salen complex compound is released from the magnetic field.

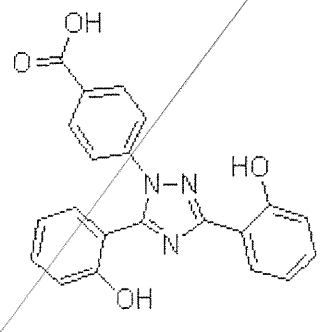
[Claim 3]

The metal-salen complex compound responsive drug according to claim 1 or 2, wherein the metal chelating agent is contained at 0.3 μM or more and 50 μM or less.

[Claim 4]

The metal-salen complex compound responsive drug according to any one of claims 1 to 3, wherein the metal chelating agent is a following compound.

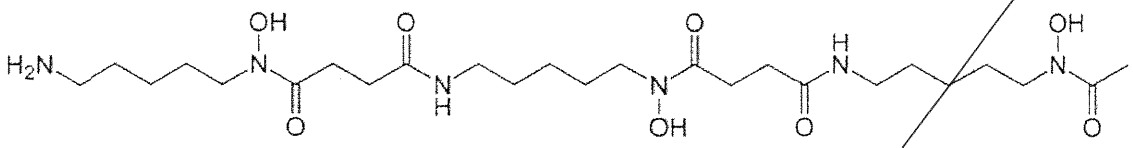
General Name: deferasirox



[Claim 5]

The metal-salen complex compound responsive drug according to any one of claims 1 to 3, wherein the metal chelating agent is a following compound.

General Name: deferoxamine



[Claim 6]

The metal-salen complex compound responsive drug according to any one of claims 1 to 5, further containing vitamin C.

[Claim 7]

The metal-salen complex compound responsive drug according to any one of claims 1 to 6, wherein when the metal-salen complex compound is used as an anti-tumor agent, cytotoxicity of the metal-salen complex is neutralized by the metal chelating agent.

[Claim 8]

A metal-containing anti-tumor agent responsive drug containing an effective amount of metal chelating agent to suppress side effects of an anti-tumor agent containing metal.

[Claim 9]

An intra-corporeal behavior control system for a metal-salen complex compound, comprising:

a step of administering a metal-salen complex compound to a human or an animal;

a step of externally applying a magnetic field to an affected site tissue and guiding the metal-salen complex compound to the magnetic-field-applied area;

a step of suspending or terminating the application of the magnetic field; and

a step of administering an effective amount of a metal chelating agent to suppress side effects of the metal-salen complex compound, which are caused by release of the metal-salen complex compound from the affected site tissue and

systemic circulation of the metal-salen complex compound due to the suspension or termination of the application of the magnetic field.

[Claim 10]

The intra-corporeal behavior control system for the metal-salen complex compound according to claim 9, wherein the metal chelating agent is administered at 0.3 μM or more and 50 μM or less.

[CLAIMS]

[Claim 1]

A drug containing a magnetic metal-salen complex compound as a medicinal component and containing a chelating agent for chelating metal of the metal-salen complex compound as a responsive component for suppressing side effects of the metal-salen complex compound, wherein the metal-salen complex compound is localized at an affected site by an external magnetic field applied from outside a body; and when the application of the external magnetic field is finished, the chelating agent binds to the metal-salen complex compound which is released from the affected site by administering the chelating agent into the body.

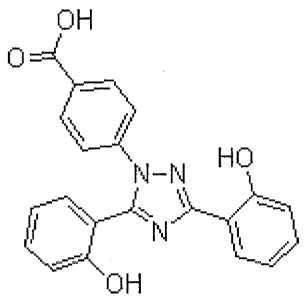
[Claim 2]

The drug according to claim 1, wherein the chelating agent is contained at 0.3 μM or more and 50 μM or less.

[Claim 3]

The drug according to claim 1 or 2, wherein the chelating agent is composed of the following compound.

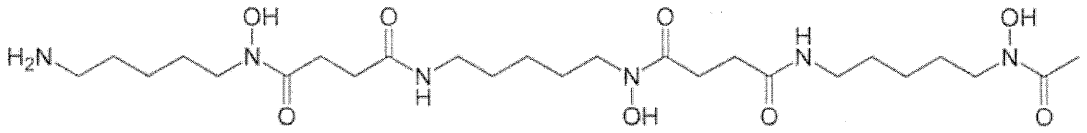
General Name: deferasirox



[Claim 4]

The drug according to claim 1 or 2, wherein the chelating agent is composed of the following compound.

General Name: deferoxamine



[Claim 5]

The drug according to any one of claims 1 to 4, further containing vitamin C.

[Claim 6]

The drug according to any one of claims 1 to 5, wherein when the metal-salen complex compound is used as an anti-tumor agent, cytotoxicity of the metal-salen complex is neutralized by the chelating agent.