radical is consequently relatively greater than that of the superoxide anion. Using this system, free radical-scavenging activities of the superoxide anion, hydroxyl radical, and methyl radicals can be simultaneously evaluated. In this study, we found that metallothionein effectively inhibited hydroxyl radical, superoxide anion, and methyl radical formation in vitro (Fig. 4).

On the other hand, it has been reported that metallothionein acts as a neuroprotective agent by scavenging superoxide radicals.[27] Metallothionein also provides protection against ischemia reperfusion-induced heart injury.[28] These studies seem to imply that metallothionein has cytoprotective activity via its free radical-scavenging activity. In the present study, we found that metallothionein concentration-dependently inhibited cell damage induced by H_2O_2/ Fe^{+2} challenge in HUVECs, indicating the free radical-scavenging properties displayed by metallothionein may have cytoprotective implications.

In conclusion, the data presented in this report show that metallothionein is a potent free radical scavenger and cytoprotectant in in vitro tests. It will be of interest to further study the cytoprotective activity of metallothionein in various radical-mediated pathological events in vivo in order to evaluate its possible therapeutic use.

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