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Copper is Crucial for Embryonic Development

July 31, 2001 Ann Arbor, Michigan -- Copper could be as important to the health of your unborn baby as folic acid, abstaining from alcohol, or giving up smoking. Without copper acting as a transport gene, unborn mice and even children could die. These are the conclusions of a new study led by Dennis Thiele, Ph.D., a professor in biological chemistry at the University of Michigan Medical School.*

The study shows that when copper is combined with a protein called Ctr 1, it is easily absorbed into cell tissue. The study has determined that the absorption of copper into cell tissue is essential for normal embryonic development in mice and most likely those of humans since the genetic structure and function of Ctr1 is nearly identical in mice and humans.

"I anticipated the importance of copper in development, but I didn't expect it to be so critical that all the mouse embryos without Ctr1 would die before birth," Thiele said. He further stated, “Based on the study’s results, it wouldn’t surprise me to find that human embryos lacking both copies of Ctr1 are aborted spontaneously during pregnancy.”

Copper is increasingly being recognised for its essential health benefits as a key micronutrient required for vital biochemical reactions within cells. "Without copper, cells can’t produce energy, metabolise iron or detoxify free radicals. Without copper we can’t grow blood vessels, control muscle contractions or produce the collagen that gives our skin its elasticity,” said Thiele.

Copper deprivation is particularly dangerous for children and infants according to Thiele. Children born with a genetic condition called Menkes disease suffer irreversible damage because copper remains trapped in their intestinal cells where it is unavailable to the many copper-requiring enzymes in the body. Patients with Wilson's disease develop cirrhosis and nerve degeneration due to their inability to distribute copper properly.

Humans can complement their copper intake with certain high copper foods, including broccoli**.** avocados, liver and oysters. This increase in copper can benefit not only expectant mothers, but also all of us who are concerned about maintaining general health.

For more information about the study or copper’s benefits, visit the website: www.eurocopper.org or call Christian De Barrin, Communications Manager, European Copper Institute, at 32 2 777 70 82

*The study was published in the June 5 issue of the *Proceedings of the National Academy of Sciences.*