Meteorin-like (METRNL) is associated with hypertrophic adipose tissue accumulation and related hyperinsulinemia and adipose tissue inflammation in humans.

**Background**

- Meteorin-like (METRNL) = circulating factor from adipocytes (muscle, macrophages)
- upregulated by exercise, cold, calorie restriction
- potentially related to obesity (HFD mice)
- effects: energy expenditure, glucose tolerance/insulin sensitivity, neurite outgrowth, neuroprotection, anti-inflammatory
- (almost all studies in mouse models)
- controversial results on relation to obesity, adipocyte differentiation, browning?

**Objectives**

We evaluated the regulation and functional role of METRNL in human adipose tissue:
1. How is METRNL expression regulated during human adipogenesis?
2. What is the relationship to obesity and metabolic parameters in humans?
3. What is the functional relevance of METRNL for human adipogenesis?

**Results**

1. METRNL decreases during human adipogenesis

2. METRNL clinically correlates with insulin and inflammation

3. METRNL inhibits human adipogenesis

**Conclusions**

Our results showing:
1. downregulation of METRNL (potentially PPAR- dependent) during human adipogenesis and in mature adipocytes
2. METRNL association with adipocyte hypertrophy and SVF proliferation
3. METRNL inhibition of human adipogenesis

Indicate that METRNL is associated with hypertrophic adipose tissue accumulation in humans. Hyper trophy related hyperinsulinemia and adipose tissue inflammation are related to increasing METRNL expression level in human adipocytes.