

Research team:

Giorgia Federico (PostDoc)
Federica Carrillo (PhD student)
Yavar Shiranvand (PhD student)

The group is interested in studying connections between iron availability and cell cycle control. In particular, they are investigating the control of iron release from ferritin, DNA replication origin activation and maintenance of genome stability by the transcriptional regulator NCOA4. By combining *in vitro* and *in vivo* study they are exploring the role of NCOA4 in responding to iron deprivation or DNA damage promoting cell cycle arrest and iron release from ferritin (ferritinophagy). These studies are run in collaboration with the group of Massimo Santoro at the DMMBM.

1. [Iron and Ferritin Modulate MHC Class I Expression and NK Cell Recognition.](#)

Sottile R, Federico G, Garofalo C, Tallerico R, Faniello MC, Quaresima B, Cristiani CM, Di Sanzo M, Cuda G, Ventura V, Wagner AK, Contrò G, Perrotti N, Gulletta E, Ferrone S, Kärre K, Costanzo FS, Carlomagno F, Carbone E. Front Immunol. 2019 Feb 26;10:224. doi: 10.3389/fimmu.2019.00224. eCollection 2019. PMID: 30873154

2. [Tamoxifen erythroid toxicity revealed by studying the role of nuclear receptor co-activator 4 in erythropoiesis.](#)

Nai A, Pettinato M, Federico G, Olivari V, Carlomagno F, Silvestri L. Haematologica. 2019 Aug;104(8):e383-e384. doi: 10.3324/haematol.2019.224857. PMID: 31366467

3. [NCOA4-mediated ferritinophagy in macrophages is crucial to sustain erythropoiesis in mice.](#)

Nai A, Lidonnici MR, Federico G, Pettinato M, Olivari V, Carrillo F, Geninatti C, Ferrari G, Camaschella C, Silvestri L, Carlomagno F. Haematologica. 2021 Mar 1;106(3):795-805. doi: 10.3324/haematol.2019.241232. PMID: 32107334

4. [NCOA4 Deficiency Impairs Systemic Iron Homeostasis.](#)

Bellelli R, Federico G, Matte' A, Colecchia D, Iolascon A, Chiariello M, Santoro M, De Franceschi L, Carlomagno F. Cell Rep. 2016 Jan 26;14(3):411-421. doi: 10.1016/j.celrep.2015.12.065. Epub 2016 Jan 14. PMID: 26776506

5. [NCOA4 transcriptional coactivator inhibits activation of DNA replication origins.](#)

Bellelli R, Castellone MD, Guida T, Limongello R, Dathan NA, Merolla F, Cirafici AM, Affuso A, Masai H, Costanzo V, Grieco D, Fusco A, Santoro M, Carlomagno F. Mol Cell. 2014 Jul 3;55(1):123-37. doi: 10.1016/j.molcel.2014.04.031. Epub 2014 Jun 5. PMID: 24910095