

Scientific publications citing ISOkine®

A selection of peer-reviewed papers from independent research groups that used ISOkine® growth factors and cytokines. These are examples of published work, not a complete list. Published in journals including Nature Communications, Frontiers in Bioengineering, and Scientific Reports.

EGF (human)

- Greggi, C.; Montanaro, M.; Scioli, M.G.; Puzzuoli, M.; Gino Grillo, S.; Scimeca, M.; Mauriello, A.; Orlandi, A.; Gasbarra, E.; Iundusi, R.; et al. Modulation of Carnitine Palmitoyl Transferase 1b Expression and Activity in Muscle Pathophysiology in Osteoarthritis and Osteoporosis. *Biomolecules* 2024, 14, 1289.
<https://doi.org/10.3390/biom14101289>
- Bodiou V, Kumar AA, Massarelli E, van Haaften T, Post MJ and Moutsatsou P (2024) Attachment promoting compounds significantly enhance cell proliferation and purity of bovine satellite cells grown on microcarriers in the absence of serum. *Front. Bioeng. Biotechnol.* 12:1443914.
<https://pubmed.ncbi.nlm.nih.gov/39553395/>
- Pekec, T., Lewandowski, J., Komur, A.A. et al. Ferritin-mediated iron detoxification promotes hypothermia survival in *Caenorhabditis elegans* and murine neurons. *Nat Commun* 13, 4883 (2022).
<https://doi.org/10.1038/s41467-022-32500-z>
- D'Agostino S, Tombolan L, Saggioro M, Frasson C, Rampazzo E, Pellegrini S, Favaretto F, Biz C, Ruggieri P, Gamba P, Bonvini P, Aveic S, Giovannoni R and Pozzobon M (2021) Rhabdomyosarcoma Cells Produce Their Own Extracellular Matrix With Minimal Involvement of Cancer-Associated Fibroblasts: A Preliminary Study. *Front. Oncol.* 10:600980.
<https://doi: 10.3389/fonc.2020.600980>

FGF2 (human)

- Martha Stokking, Marta Cadenas-Martín, Ana I Martín-González, Alba Fernández-Ferrer, Francisco Arnalich-Montiel, Maria P De Miguel. Three-dimensional-printed collagen scaffold with limbal stem cells derived from adipose-derived mesenchymal stem cells for the treatment of limbal stem cell deficiency.

International Journal of Bioprinting, 2025, 11(6): 407-429

<https://DOI:10.36922/IJB025290293>

- Cadenas-Martin, M.; Arnalich-Montiel, F.; Miguel, M.P.D. Derivation of Limbal Stem Cells from Human Adult Mesenchymal Stem Cells for the Treatment of Limbal Stem Cell Deficiency. *Int. J. Mol. Sci.* 2023, 24, 2350.
<https://doi.org/10.3390/ijms24032350>
- Tavasoli, M., Lahire, S., Sokolenko, S. et al. Mechanism of action and therapeutic route for a muscular dystrophy caused by a genetic defect in lipid metabolism. *Nat Commun* 13, 1559 (2022).
<https://doi.org/10.1038/s41467-022-29270-z>
- Pekec, T., Lewandowski, J., Komur, A.A. et al. Ferritin-mediated iron detoxification promotes hypothermia survival in *Caenorhabditis elegans* and murine neurons. *Nat Commun* 13, 4883 (2022).
<https://doi.org/10.1038/s41467-022-32500-z>
- D'Agostino S, Tombolan L, Saggiaro M, Frasson C, Rampazzo E, Pellegrini S, Favaretto F, Biz C, Ruggieri P, Gamba P, Bonvini P, Aveic S, Giovannoni R and Pozzobon M (2021) Rhabdomyosarcoma Cells Produce Their Own Extracellular Matrix With Minimal Involvement of Cancer-Associated Fibroblasts: A Preliminary Study. *Front. Oncol.* 10:600980.
<https://doi:10.3389/fonc.2020.600980>
- Szojka ARA, Li DX, Sopcak MEJ, Ma Z, Kunze M, Mulet-Sierra A, Adeeb SM, Westover L, Jomha NM and Adesida AB (2021) Mechano-Hypoxia Conditioning of Engineered Human Meniscus. *Front. Bioeng. Biotechnol.* 9:739438.
<https://doi:10.3389/fbioe.2021.739438>
- López-Iglesias P, Alcaina Y, Tapia N, et al. Hypoxia Induces Pluripotency in Primordial Germ Cells by HIF1 α Stabilization and Oct4 Dereglulation. *Antioxidants & Redox Signaling.* 2015;22(3):205-223.
<https://doi:10.1089/ars.2014.5871>

Flt3-ligand (human)

- Razmkhah F, Soleimani M, Mehrabani D, et al. Leukemia microvesicles affect healthy hematopoietic stem cells. *Tumor Biology.* 2017;39(2).
<https://doi:10.1177/1010428317692234>
- Sierra H. Root, Héctor L. Aguila; Novel population of human monocyte and osteoclast progenitors from pluripotent stem cells and peripheral blood. *Blood Adv* 2021; 5 (21): 4435-4446.
<https://doi:https://doi.org/10.1182/bloodadvances.2021004552>

G-CSF (human)

- Sierra H. Root, Héctor L. Aguila; Novel population of human monocyte and osteoclast progenitors from pluripotent stem cells and peripheral blood. Blood Adv 2021; 5 (21): 4435-4446. doi: <https://doi.org/10.1182/bloodadvances.2021004552>

GDNF (human)

- Vogiatzis, S.; Celestino, M.; Trevisan, M.; Magro, G.; Del Vecchio, C.; Erdengiz, D.; Palù, G.; Parolin, C.; Maguire-Zeiss, K.; Calistri, A. Lentiviral Vectors Expressing Chimeric NEDD4 Ubiquitin Ligases: An Innovative Approach for Interfering with Alpha-Synuclein Accumulation. Cells 2021, 10, 3256. <https://doi.org/10.3390/cells10113256>
- Lisse, T.S., Sharma, M., Vishlaghi, N. et al. GDNF promotes hair formation and cutaneous wound healing by targeting bulge stem cells. npj Regen Med 5, 13 (2020). <https://doi.org/10.1038/s41536-020-0098-z>

IFN γ (human)

- Cuomo F, Dell'Aversana C, Chioccarelli T, Porreca V, Manfrevola F, Papulino C, Carafa V, Benedetti R, Altucci L, Cobellis G and Cobellis G (2022) HIF3A Inhibition Triggers Browning of White Adipocytes via Metabolic Rewiring. Front. Cell Dev. Biol. 9:740203. <https://doi.org/10.3389/fcell.2021.740203>
- Cuomo, F., Coppola, A., Botti, C. et al. Pro-inflammatory cytokines activate hypoxia-inducible factor 3 α via epigenetic changes in mesenchymal stromal/stem cells. Sci Rep 8, 5842 (2018). <https://doi.org/10.1038/s41598-018-24221-5>
- de Jong, E., Lim, A., Waterer, G. and Price, P. (2012), Monocyte-derived macrophages do not explain susceptibility to pulmonary non-tuberculous mycobacterial disease. Clin Trans Immunol, 1: e2. <https://doi.org/10.1038/cti.2012.1>

LIF (human)

- Appleby SJ, Misica-Turner P, Oback FC, Dhali A, McLean ZL and Oback B (2022) Double cytoplasm embryonic cloning improves in vitro but not in vivo development from mitotic pluripotent cells in cattle. *Front. Genet.* 13:933534.
<https://doi.org/10.3389/fgene.2022.933534>
- Hosaka N, Kanda S, Shimono T, Nishiyama T. Induction of $\gamma\delta$ T cells from HSC-enriched BMCs co-cultured with iPSC-derived thymic epithelial cells. *J Cell Mol Med.* 2021;25:10604-10613.
<https://doi.org/10.1111/jcmm.16993>

LIF (mouse)

- Jiang Z, Generoso SF, Badia M, Payer B, Carey LB (2021) A conserved expression signature predicts growth rate and reveals cell & lineage-specific differences. *PLOS Computational Biology* 17(11): e1009582.
<https://doi.org/10.1371/journal.pcbi.1009582>
- Yoshiteru Yano, Naoya Iimura, Nobuhiko Kojima, Hideho Uchiyama, Non-neural and cardiac differentiating properties of Tbx6-expressing mouse embryonic stem cells, *Regenerative Therapy*, Volume 3, 2016, Pages 1-6, ISSN 2352-3204,
<https://doi.org/10.1016/j.reth.2016.02.001>
- Jaewoong Yoon, Wonju Jo, Dayeong Jeong, Junho Kim, Hwapyeong Jeong, Jaesung Park, Generation of nanovesicles with sliced cellular membrane fragments for exogenous material delivery, *Biomaterials*, Volume 59, 2015,
<https://doi.org/10.1016/j.biomaterials.2015.04.028>
- Adam C. Wilkinson, Debbie K. Goode, Yi-Han Cheng, Diane E. Dickel, Sam Foster, Tim Sendall, Marloes R. Tijssen, Maria-Jose Sanchez, Len A. Pennacchio, Aileen M. Kirkpatrick, Berthold Göttgens; Single site-specific integration targeting coupled with embryonic stem cell differentiation provides a high-throughput alternative to in vivo enhancer analyses. *Biol Open* 15 November 2013; 2 (11): 1229-1238. doi:
<https://doi.org/10.1242/bio.20136296>

M-CSF (human)

- Tavano, R., Morillas-Becerril, L., Geffner-Smith, A. et al. Species differences in opsonization and phagocyte recognition of preclinical poly-2-alkyl-2-oxazoline-coated nanoparticles. *Nat Commun* 16, 2642 (2025).
<https://doi.org/10.1038/s41467-025-57648-2>

- Quentin Glaziou, Laetitia Basset, Sènan d'Almeida, Pascale Pignon, Nabila Jabrane-Ferrat, Christophe Blanquart, Yves Delneste, Julie Tabiasco. IL-27 neutralization enhances macrophage polarization and improves immune checkpoint efficacy bioRxiv 2024.09.13.612803; doi: <https://doi.org/10.1101/2024.09.13.612803>
- d'Almeida, S. M., Kauffenstein, G., Roy, C., Basset, L., Papargyris, L., Henrion, D., ... Tabiasco, J. (2016). The ecto-ATPDase CD39 is involved in the acquisition of the immunoregulatory phenotype by M-CSF-macrophages and ovarian cancer tumor-associated macrophages: Regulatory role of IL-27. *OncolImmunology*, 5(7). <https://doi.org/10.1080/2162402X.2016.1178025>
- de Jong, E., Lim, A., Waterer, G. and Price, P. (2012), Monocyte-derived macrophages do not explain susceptibility to pulmonary non-tuberculous mycobacterial disease. *Clin Trans Immunol*, 1: e2. <https://doi.org/10.1038/cti.2012.1>

SCF (human)

- Zhang, L., Xiao, K., Zhang, S. et al. SOCS2 inhibits the tumorigenesis of GISTs and increases the sensitivity of GISTs to imatinib by suppression of KIT activation. *Sci Rep* 15, 4779 (2025). <https://doi.org/10.1038/s41598-025-89477-0>
- Zhang S, Zhang L, Zhang D, et al. Four and a half LIM domains 2 (FHL2) attenuates tumorigenesis of gastrointestinal stromal tumors (GISTs) by negatively regulating KIT signaling. *Mol Carcinogen*. 2024; 63: 1334-1348. doi:10.1002/mc.23727
- Li, S., Zhao, S., Liang, N. et al. SPRY4 inhibits and sensitizes the primary KIT mutants in gastrointestinal stromal tumors (GISTs) to imatinib. *Gastric Cancer* 26, 677-690 (2023). <https://doi.org/10.1007/s10120-023-01402-4>
- Shaoting Zhang, Liangying Zhang, Zongying Jiang, Yue Guo, Hui Zhao, Jianmin Sun. Protein tyrosine phosphatase receptor type E (PTPRE) regulates the activation of wild-type KIT and KIT mutants differently, *Biochemistry and Biophysics Reports*, Volume 26, 100974 (2021). <https://doi.org/10.1016/j.bbrep.2021.100974>
- Sierra H. Root, Héctor L. Aguila; Novel population of human monocyte and osteoclast progenitors from pluripotent stem cells and peripheral blood. *Blood Adv* 2021; 5 (21): 4435-4446. doi: <https://doi.org/10.1182/bloodadvances.2021004552>

- Riccetti S, Sinigaglia A, Desole G, Nowotny N, Trevisan M, Barzon L. Modelling West Nile Virus and Usutu Virus Pathogenicity in Human Neural Stem Cells. *Viruses*. 2020 Aug 12;12(8):882. doi: 10.3390/v12080882. PMID: 32806715; PMCID: PMC7471976.
- Zhu, G., Shi, J., Zhang, S. et al. Loss of PI3 kinase association improves the sensitivity of secondary mutation of KIT to Imatinib. *Cell Biosci* 10, 16 (2020).
<https://doi.org/10.1186/s13578-020-0377-9>
- Phung B, Sun J, Schepsky A, Steingrimsson E, Rönnstrand L (2011) C-KIT Signaling Depends on Microphthalmia-Associated Transcription Factor for Effects on Cell Proliferation. *PLoS ONE* 6(8): e24064.
<https://doi.org/10.1371/journal.pone.0024064>

SCF (mouse)

- Phung B, Sun J, Schepsky A, Steingrimsson E, Rönnstrand L (2011) C-KIT Signaling Depends on Microphthalmia-Associated Transcription Factor for Effects on Cell Proliferation. *PLoS ONE* 6(8): e24064.
<https://doi.org/10.1371/journal.pone.0024064>

TNF- α (human)

- Cuomo F, Dell'Aversana C, Chioccarelli T, Porreca V, Manfredola F, Papulino C, Carafa V, Benedetti R, Altucci L, Cobellis G and Cobellis G (2022) HIF3A Inhibition Triggers Browning of White Adipocytes via Metabolic Rewiring. *Front. Cell Dev. Biol.* 9:740203.
<https://doi.org/10.3389/fcell.2021.740203>
- Cuomo, F., Coppola, A., Botti, C. et al. Pro-inflammatory cytokines activate hypoxia-inducible factor 3 α via epigenetic changes in mesenchymal stromal/stem cells. *Sci Rep* 8, 5842 (2018).
<https://doi.org/10.1038/s41598-018-24221-5>
- Lampronti, Ilaria, Manzione, Maria Giulia, Sacchetti, Gianni, Ferrari, Davide, Spisani, Susanna, Bezzerri, Valentino, Finotti, Alessia, Borgatti, Monica, Dececchi, Maria Cristina, Miolo, Giorgia, Marzaro, Giovanni, Cabrini, Giulio, Gambari, Roberto, Chilin, Adriana, Differential Effects of Angelicin Analogues on NF- κ B Activity and IL-8 Gene Expression in Cystic Fibrosis IB3-1 Cells, *Mediators of Inflammation*, 2017, 2389487, 11 pages, 2017.
<https://doi.org/10.1155/2017/2389487>

- Kerr, M., Gomez, G., Ferguson, C. et al. Laser-mediated rupture of chlamydial inclusions triggers pathogen egress and host cell necrosis. *Nat Commun* 8, 14729 (2017).
<https://doi.org/10.1038/ncomms14729>

VEGF165 (human)

- Cuomo F, Dell'Aversana C, Chioccarelli T, Porreca V, Manfredola F, Papulino C, Carafa V, Benedetti R, Altucci L, Cobellis G and Cobellis G (2022) HIF3A Inhibition Triggers Browning of White Adipocytes via Metabolic Rewiring. *Front. Cell Dev. Biol.* 9:740203.
<https://doi.org/10.3389/fcell.2021.740203>
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<https://doi.org/10.3390/cancers11060787>
- Cuomo, F., Coppola, A., Botti, C. et al. Pro-inflammatory cytokines activate hypoxia-inducible factor 3α via epigenetic changes in mesenchymal stromal/stem cells. *Sci Rep* 8, 5842 (2018).
<https://doi.org/10.1038/s41598-018-24221-5>
- Sharma, D., Hamlet, S., Petcu, E. et al. The effect of bisphosphonates on the endothelial differentiation of mesenchymal stem cells. *Sci Rep* 6, 20580 (2016).
<https://doi.org/10.1038/srep20580>
- N.K. Binder, J. Evans, D.K. Gardner, L.A. Salamonsen, N.J. Hannan, Endometrial signals improve embryo outcome: functional role of vascular endothelial growth factor isoforms on embryo development and implantation in mice, *Human Reproduction*, Volume 29, Issue 10, 10 October 2014, Pages 2278-2286,
<https://doi.org/10.1093/humrep/deu211>

IL-2 (human)

- Sordo-Bahamonde, C.; Lorenzo-Herrero, S.; González-Rodríguez, A.P.; Payer, Á.R.; González-García, E.; López-Soto, A.; Gonzalez, S. LAG-3 Blockade with Relatlimab (BMS-986016) Restores Anti-Leukemic Responses in Chronic Lymphocytic Leukemia. *Cancers* 2021, 13, 2112.
<https://doi.org/10.3390/cancers13092112>

IL-6 (human)

- Sierra H. Root, Héctor L. Aguila; Novel population of human monocyte and osteoclast progenitors from pluripotent stem cells and peripheral blood. *Blood Adv* 2021; 5 (21): 4435-4446. doi: <https://doi.org/10.1182/bloodadvances.2021004552>
- Cuomo, F., Coppola, A., Botti, C. et al. Pro-inflammatory cytokines activate hypoxia-inducible factor 3α via epigenetic changes in mesenchymal stromal/stem cells. *Sci Rep* 8, 5842 (2018). <https://doi.org/10.1038/s41598-018-24221-5>

Plant molecular farming

- Panting M, Holme IB, Björnsson JM, Zhong Y and Brinch-Pedersen H (2021) CRISPR/Cas9 and Transgene Verification of Gene Involvement in Unfolded Protein Response and Recombinant Protein Production in Barley Grain. *Front. Plant Sci.* 12:755788. <https://doi.org/10.3389/fpls.2021.755788>
- Panting M, Holme IB, Björnsson JM, Brinch-Pedersen H. Modulation of Barley (*Hordeum vulgare* L.) Grain Protein Sink-Source Relations Towards Human Epidermal Growth Factor Instead of B-hordein Storage Protein. *Mol Biotechnol.* 2021 Jan;63(1):13-23. Epub 2020 Oct 13. PMID: 33051823. <https://doi.org/10.1007/s12033-020-00279-3>
- Moon, K.-B.; Park, J.-S.; Park, Y.-I.; Song, I.-J.; Lee, H.-J.; Cho, H.S.; Jeon, J.-H.; Kim, H.-S. Development of Systems for the Production of Plant-Derived Biopharmaceuticals. *Plants* 2020, 9, 30. <https://doi.org/10.3390/plants9010030>
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- Magnusdottir A, Vidarsson H, Björnsson JM, Örvar BL. Barley grains for the production of endotoxin-free growth factors. *Trends Biotechnol.* 2013 Oct;31(10):572-80. Epub 2013 Jul 10. PMID: 23849675. <https://doi.org/10.1016/j.tibtech.2013.06.002>
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