



**Diagnostic
BioSystems**

Instructions For Use KT 021-IFU

Document #: DS-3014-C

Release Date: 07/02/2024

6616 Owens Drive, Pleasanton, CA 94588 U.S.A. - Tel. (925) 484-3350 - Fax (925) 484-3390 - www.dbiosys.com

Iron Stain Kit

Description and Principle

The Iron Stain Kit is intended for use in the detection of ferric iron in tissues and bone marrow. Ferric iron is normally found in small amounts in bone marrow and the spleen. Abnormally large deposits may be seen in hemochromatosis and hemosiderosis.

This product is based on the Prussian Blue reaction in which ferric iron reacts with an acidic solution of potassium ferrocyanide to form an insoluble blue product called Prussian blue. Only ferric ions loosely bound to protein complexes will stain blue. Strongly bound ferric ions will not stain.

Expected Results

Iron:	Bright Blue
Nuclei:	Red
Background:	Pink

Smears

Sideroblasts: These are nucleated erythrocytes containing at least one small blue granule. If the blue granules surround the nucleus, the cell is a ringed sideroblast.

Siderocytes: These are non-nucleated erythrocytes containing at least one blue granule.

Reticuloendothelial Iron: Usually seen as blue particles on the marrow smear or as blue particles in the cytoplasm or phagocytic cells.

Kit Contents

1. Potassium Ferrocyanide Solution	15-30°C
2. Hydrochloric Acid Solution (2%)	15-30°C
3. Nuclear Fast Red Solution	15-30°C

Storage

Suggested Controls (not provided)

Spleen, Bone Marrow.

Uses/Limitations

For In-Vitro Diagnostic use only.

Do not use if reagents become cloudy or precipitate.

Do not use past expiration date.

Use caution when handling reagents.

Non-Sterile

Intended for FFPE sections cut at 5-10µm.

This procedure has not been optimized for frozen sections.

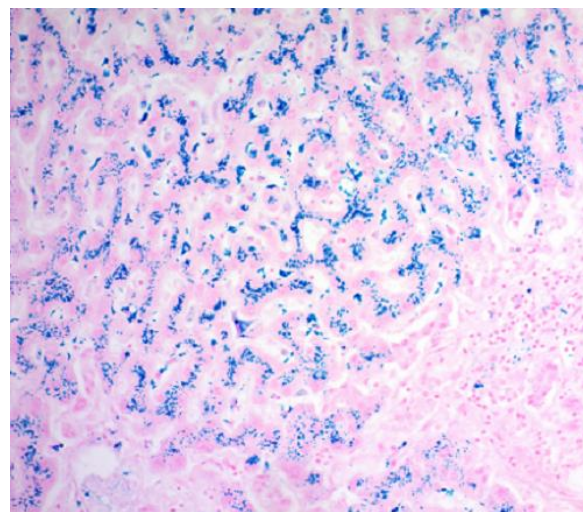
Frozen sections may require protocol modification.

Storage

Store kit and all components at room temperature (15-30°C).

Safety and Precautions

Please see current Safety Data Sheets (SDS) for this product and components GHS classification, pictograms, and full hazard/precautionary statements. If there is any serious incident that has occurred in relation to the device, please contact the manufacturer: Diagnostic BioSystems Technical Support at (925) 484-3350, extension 2 or techsupport@dbiosys.com. If required, please report to the Competent Authority of the Member State in which the user and/or patient is established.



Ferric iron deposits in Human Liver viewed at 20X

Procedure

Note: Use acid-washed or bleach-washed glassware. Rinse all glassware with distilled water prior to use. Do not use metal forceps to transfer slide during staining procedure.

1. Deparaffinize sections if necessary and hydrate to distilled water.
2. Mix equal volumes of Potassium Ferrocyanide Solution and Hydrochloric Acid Solution to make a working Iron Stain Solution. Use once and discard.
3. Incubate slide in working Iron Stain Solution for 3-5 minutes.
4. Rinse thoroughly in distilled water.
5. Stain slide in Nuclear Fast Red Solution for 5 minutes.
6. Rinse in 4 changes of distilled water.
7. Dehydrate in 3 changes of absolute alcohol for 2 minutes each.
8. Clear, and mount in synthetic resin.

References

1. Ryosuke Nakamura, Yasukazu Takanezawa, Yuka Ohshiro, Shimpei Uruguchi, Masako Kiyono, Effects of chemical forms of gadolinium on the spleen in mice after single intravenous administration, Biochemistry and Biophysics Reports, Volume 29, 2022, 101217, ISSN 2405-5808, <https://doi.org/10.1016/j.bbrep.2022.101217>.
2. Yamaguchi, H., Honda, S., Torii, S. et al. Wipi3 is essential for alternative autophagy and its loss causes neurodegeneration. Nat Commun 11, 5311 (2020). <https://doi.org/10.1038/s41467-020-18892-w>



Diagnostic BioSystems
6616 Owens Drive
Pleasanton, CA, 94588
Tel: (925) 484 3350
www.dbiosys.com



CH REP
MedEnvoy Switzerland
Gotthardstrasse 28
6302 Zug
Switzerland



MedEnvoy Global B.V.
Prinses Margrietplantsoen 33 - Suite 123
2595 AM The Hague
The Netherlands

3. Jing Qi, Jong-Won Kim, Zixiong Zhou, Chae-Woong Lim, Bumseok Kim, Ferroptosis Affects the Progression of Nonalcoholic Steatohepatitis via the Modulation of Lipid Peroxidation-Mediated Cell Death in Mice, *The American Journal of Pathology*, Volume 190, Issue 1, 2020, Pages 68-81, ISSN 0002-9440, <https://doi.org/10.1016/j.ajpath.2019.09.011>.
4. G.-H. Young, T.-M. Huang, C.-H. Wu, C.-F. Lai, C.-C. Hou, K.-Y. Peng, C.-J. Liang, S.-L. Lin, S.-C. Chang, P.-R. Tsai, K.-D. Wu, V.-C. Wu, and W.-J. Ko, "Hemojuvelin Modulates Iron Stress During Acute Kidney Injury: Improved by Furin Inhibitor," *Antioxidants & Redox Signaling*, vol. 20, no. 8, pp. 1181-1194, Mar. 2014.
6. Tetsuya Kagawa, Yuki Matsumi, Hiromichi Aono, Toshiaki Ohara, Hiroshi Tazawa, Kunitoshi Shigeyasu, Shuya Yano, Sho Takeda, Yasuhiro Komatsu, Robert M. Hoffman, Toshiyoshi Fujiwara & Hiroyuki Kishimoto (2021) Immuno-hyperthermia effected by antibody-conjugated nanoparticles selectively targets and eradicates individual cancer cells, *Cell Cycle*, 20:13, 1221-1230, DOI: 10.1080/15384101.2021.1915604
5. Sheenan, D.C., Hrapchak, B.B. *Theory and Practice of Histotechnology*, 2nd Edition. Battelle Press, Columbus, OH. Page 217. 1980
6. Carson, F.L., *Histotechnology: A Self-Instructional Text*, ASCP Press, Chicago, IL. Pages 214-215. 1990



Diagnostic BioSystems
6616 Owens Drive
Pleasanton, CA, 94588
Tel: (925) 484 3350
www.dbiosys.com



CH REP 
MedEnvoy Switzerland
Gotthardstrasse 28
6302 Zug
Switzerland



MedEnvoy Global B.V.
Prinses Margrietplantsoen 33 - Suite 123
2595 AM The Hague
The Netherlands