

Hot Topics from Bed to Bench to Policy

Iron Therapy Management in the IBD Patient

Drs Christoph Gasche and Thomas Walters
Ritz-Carlton Hotel, Toronto

Canada Future Directions in IBD



Question

- Does it matter if your patient is anaemic?
 - A) Yes
 - B) No

Question

- Does it matter if your patient is iron deficient even if not anaemic?
 - A) Yes
 - B) No

Iron Deficiency in IBD

- How much iron is stored in the average adult?
 - A) 1-2 mg
 - B) 20 mg
 - C) 500 mg
 - D) 3,500 mg
 - E) 35g

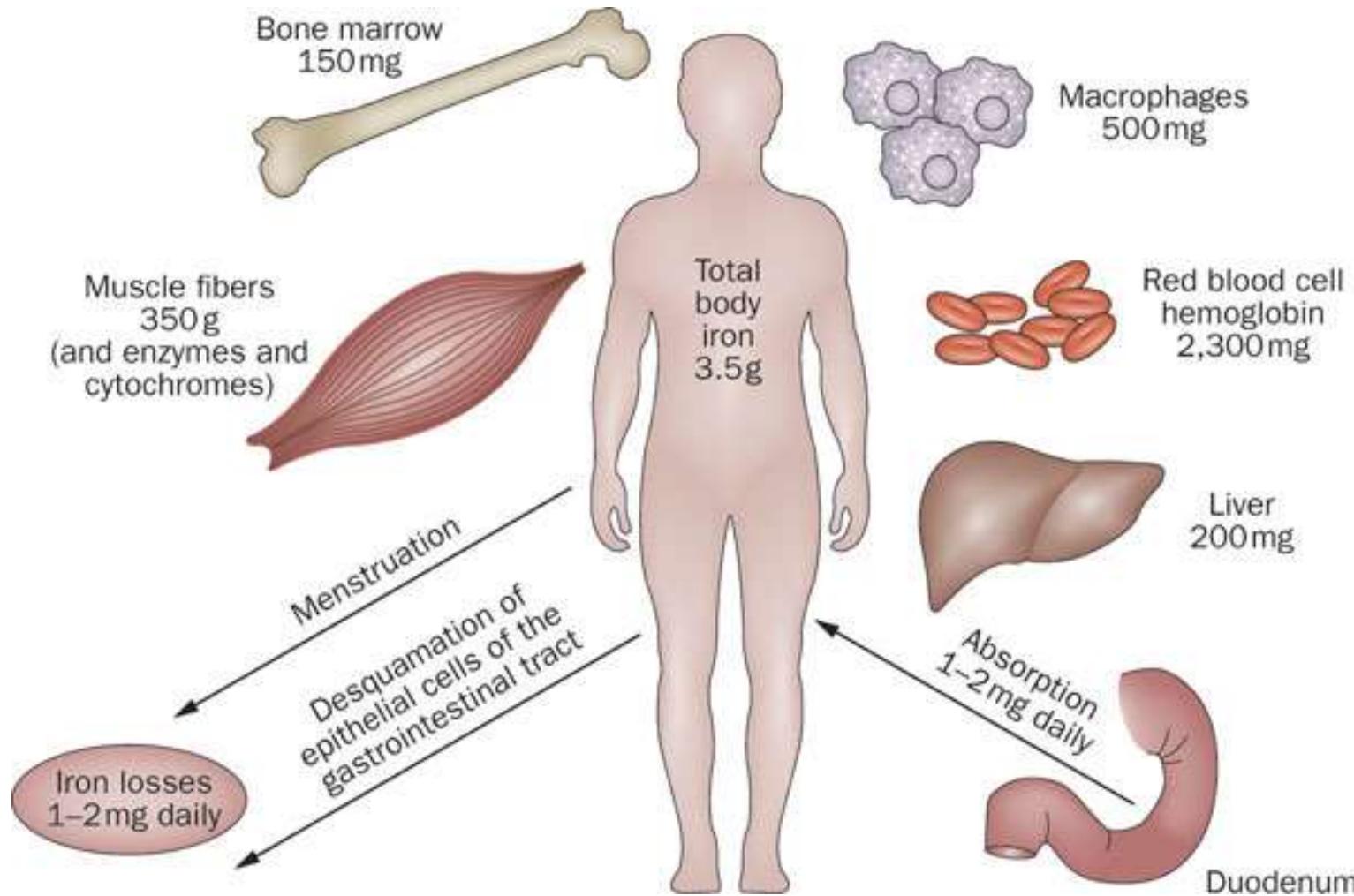
Iron Deficiency in IBD

- Which single compartment in body stores the greatest amount of iron?
 - A) The Muscles
 - B) The Intestinal Lining
 - C) The Liver
 - D) The Blood
 - E) The Bones and Bone Marrow

Iron Deficiency in IBD

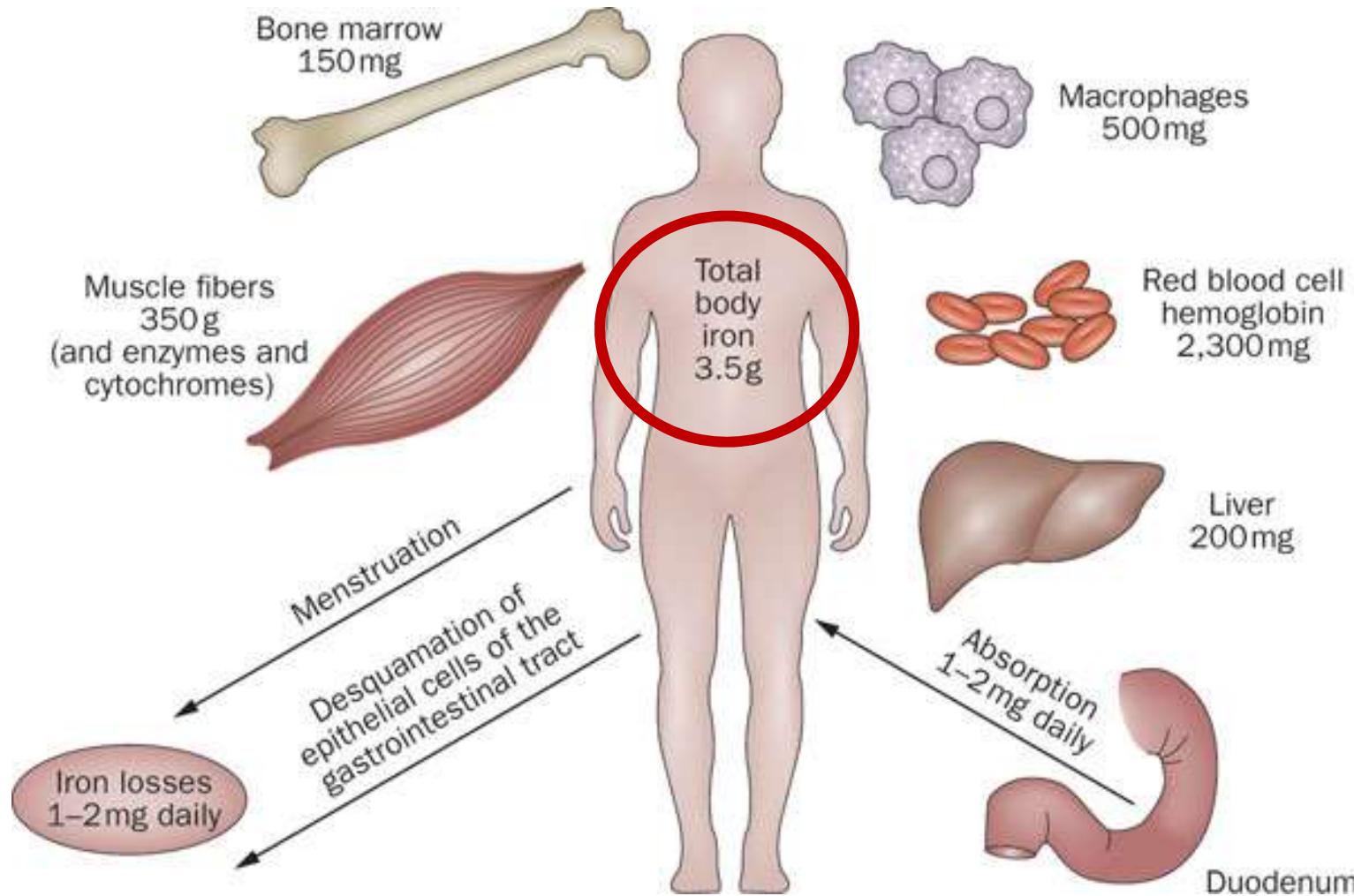
- In general, body iron stores remain in equilibrium. Roughly how much iron is absorbed and lost each day?
 - A) 1-2 mg
 - B) 20 mg
 - C) 500 mg
 - D) 3,500 mg
 - E) 35g

Iron homeostasis in the healthy state



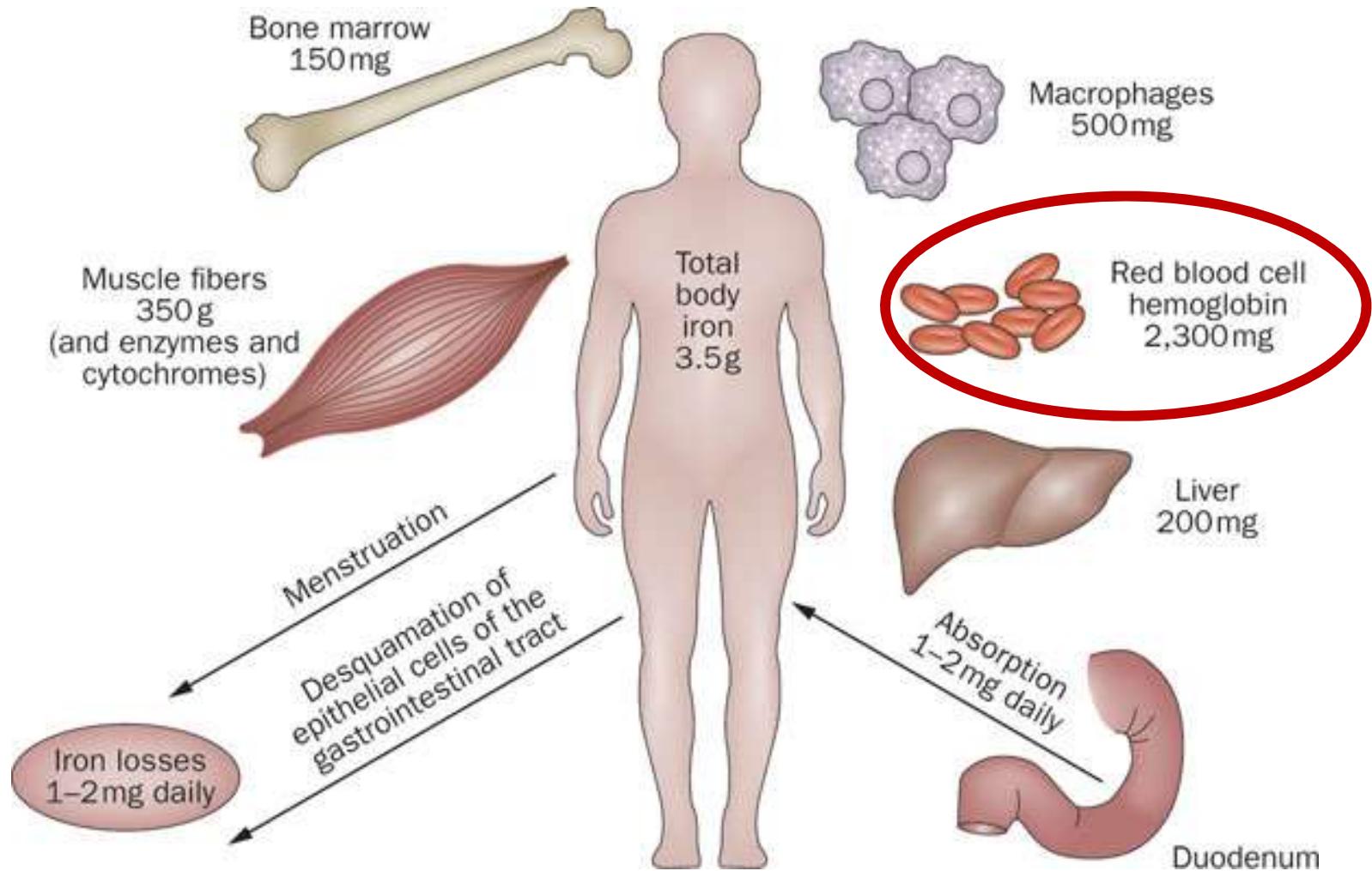
Stein, J. et al. *Nat. Rev. Gastroenterol. Hepatol.* Vol 7: 599-610 (2010)

Iron homeostasis in the healthy state



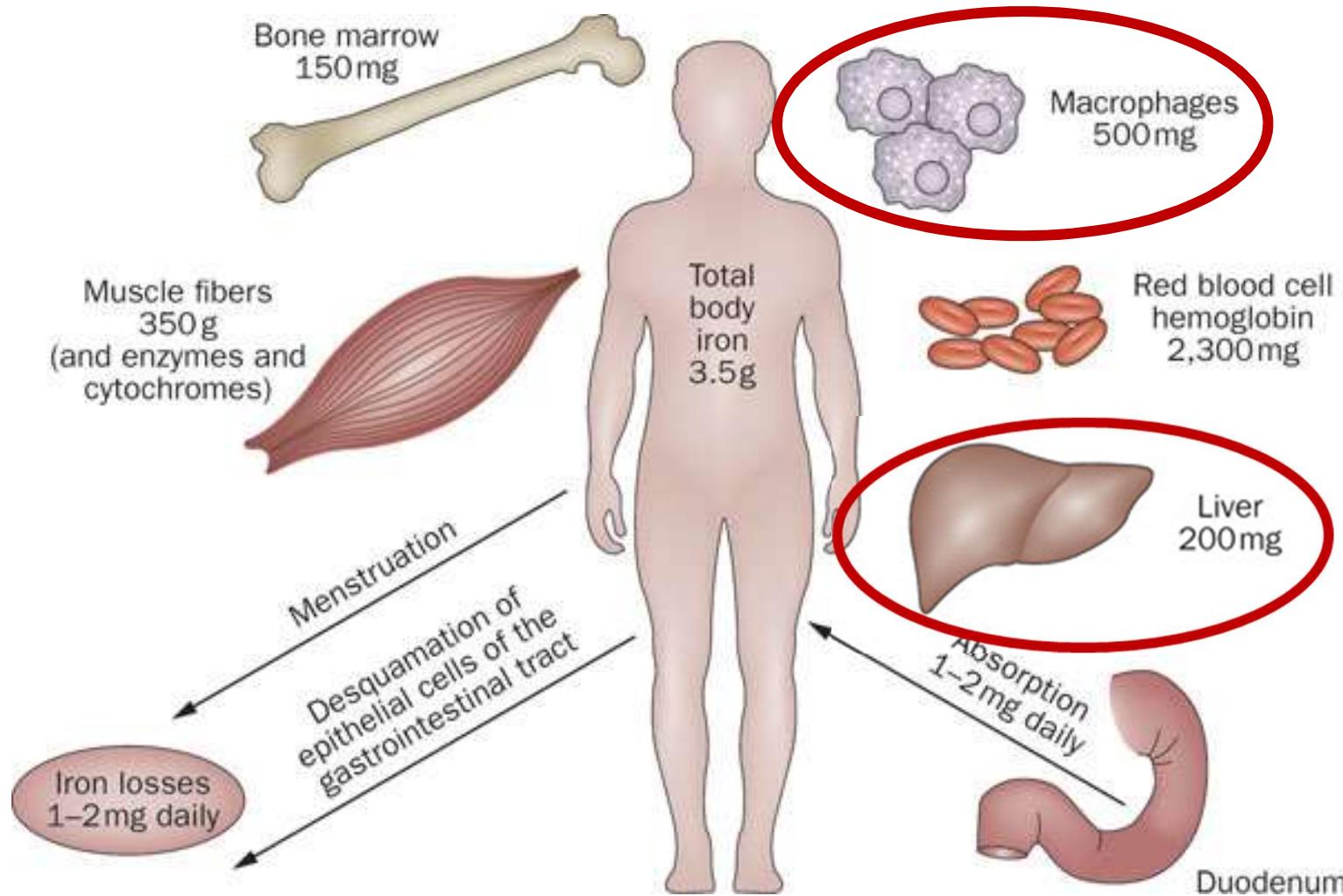
Stein, J. et al. *Nat. Rev. Gastroenterol. Hepatol.* Vol 7: 599-610 (2010)

Iron homeostasis in the healthy state



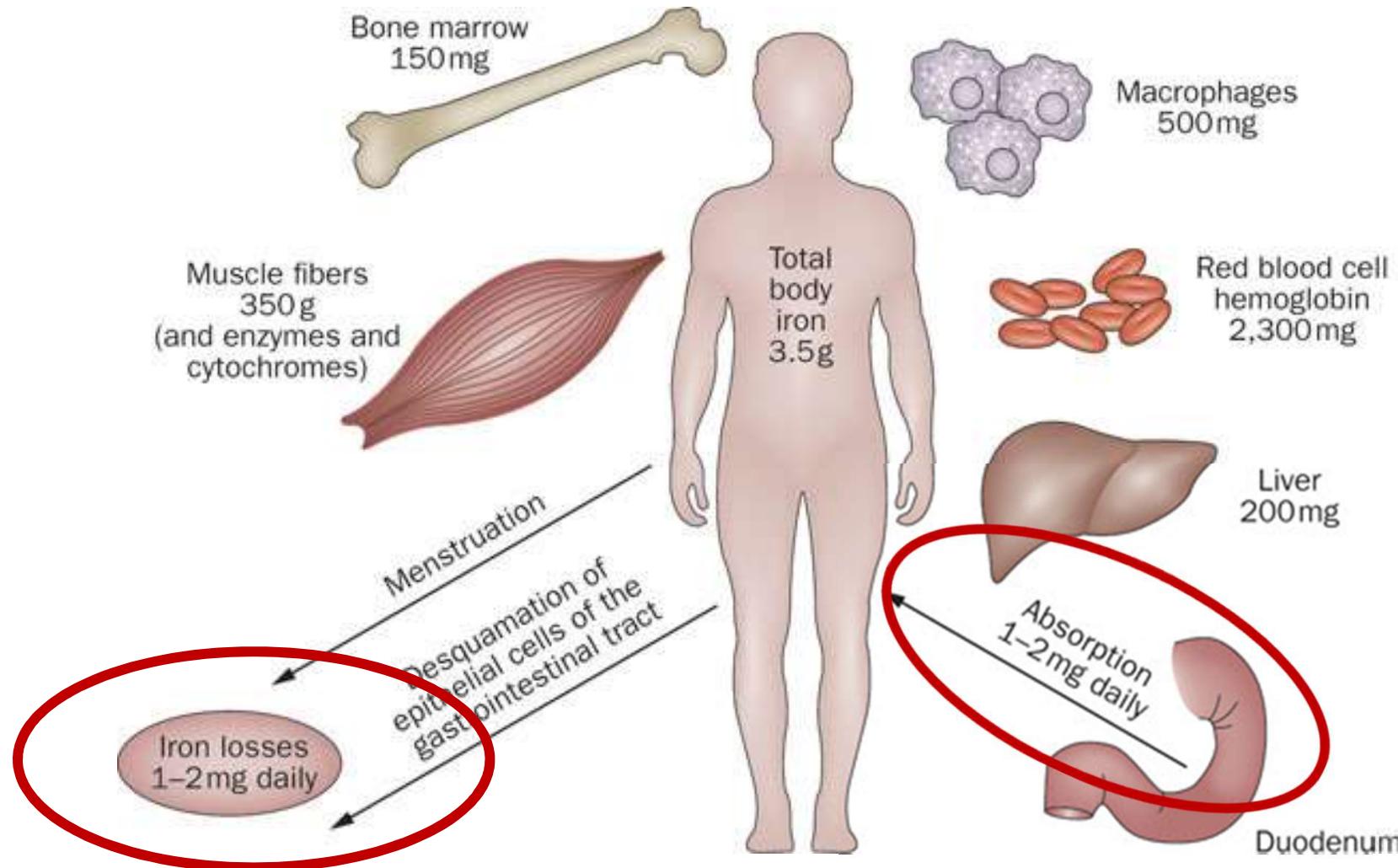
Stein, J. et al. *Nat. Rev. Gastroenterol. Hepatol.* Vol 7: 599-610 (2010)

Iron homeostasis in the healthy state



Stein, J. et al. *Nat. Rev. Gastroenterol. Hepatol.* Vol 7: 599-610 (2010)

Iron homeostasis in the healthy state



Stein, J. et al. *Nat. Rev. Gastroenterol. Hepatol.* Vol 7: 599-610 (2010)

Iron homeostasis in the healthy state

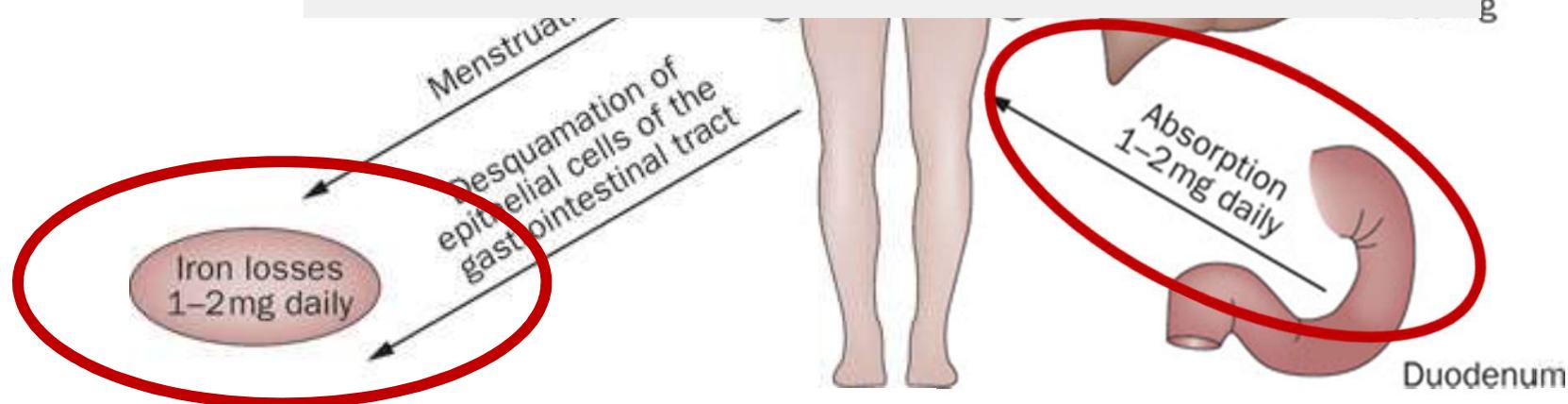
Bone marrow
150mg

Muscle
35
(and enzymes)
cytoch

Iron homeostasis is governed solely by absorption from the digestive tract, there is no active excretion mechanism!

I cell
binding

g



Stein, J. et al. *Nat. Rev. Gastroenterol. Hepatol.* Vol 7: 599-610 (2010)

Dietary Iron

- All oral iron supplements are the same?
 - A) Yes
 - B) No
 - C) Dunno!

Dietary Iron

- Diet will affect the absorption of all orally ingested iron?
 - A) Yes
 - B) No
 - C) Dunno!

PARENTERAL IRON

- How frequently have you used an IV iron therapy product in your patients with IBD?
 - A. A ridiculously high number of times
 - B.
 - C.
 - D.
 - E. Essentially never

Jeopardy Time...

- What is ‘Hepcidin’?
 - A protein related to Heparin that deals with coagulation and bleeding issues
 - An anti-microbial acute-phase protein produced by the liver
 - An enzyme produced in the liver that increases transferrin production
 - A made up word that is very close to a real substance important in iron physiology
 - Something that I have never heard of before

The Case

- Martha M., 44yrs, never smoked
- 2015 Dx left sided colitis, cont. various mesalazine products, 3x systemic steroids (flare about once a year)
- Comes in without appointment because of bloody diarrhea 5 to 8 bowel movements since 10 days
- Lab tests show Hb 10.3g/dl, ferritin 15 ng/ml, TSat 8%, CRP 1.8 mg/dl

Areas to explore

- Investigational approach
- Necessity for specific supplementation
- Potential routes of administration
- Pros and cons for IV iron
- Dosing and timing considerations with iron therapy

Getting started...

Do you want to do any more lab tests?

- A. Yes
- B. No

Getting started...

Do you want to do any more lab tests?

- A. Yes
- B. No

what?
why?

Philosophy...

If you could quickly and effectively treat this flare, do you think it is necessary to specifically treat this patient's iron deficiency anemia?

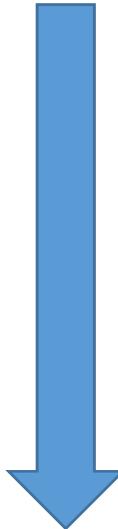
- A. Absolutely
- B.
- C. Debatable
- D.
- E. No, probably not

Philosophy...

If you could quickly and effectively treat this flare, do you think it is necessary to specifically treat this patient's iron deficiency anemia?

- A. Absolutely
- B.
- C. Debatable
- D.
- E. No, probably not

Expand!



Time to treat

If you **WERE** to suggest an oral iron therapy, do you have a preference for a specific product for this patient?

- A. Yes
- B. No
- C. Like I said...I don't do the 'oral thing'!

Time to treat

If you **WERE** to suggest an oral iron therapy, do you have a preference for a specific product for this patient?

- A. Yes
- B. No
- C. Like I said...I don't do the 'oral thing'!

Details?

Time to treat

What do you think is the most appropriate route of iron supplementation for this patient?

- A. Improved ‘high iron’ diet choices
- B. A specific Oral Supplement
- C. IV Iron Support
- D. Either Oral Supplement or IV Iron, whichever one the patient wants
- E. I wouldn’t recommend supplementation at all

Time to treat

What do you think is the most appropriate route of iron supplementation for this patient?

- A. Improved 'high iron' diet choices
- B. A specific Oral Supplement
- C. IV Iron Support
- D. Either Oral Supplement or IV Iron, whichever one the patient wants
- E. I wouldn't recommend supplementation at all

Would your answer be different if the patient had Crohn's Disease?

- A. Yes
- B. No



Time to treat

Do you have any concerns prescribing/administering
an IV Iron Product?

- A. Yes
- B. No

How much and when

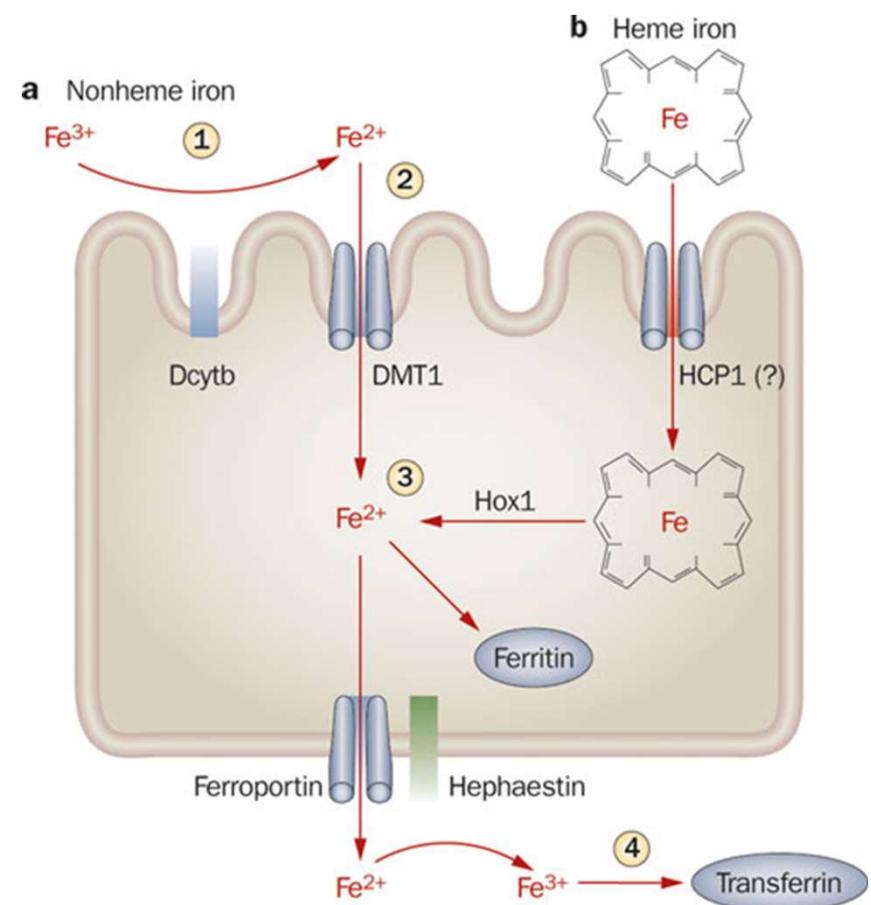
When recommending an iron therapy for this patient, do you vary your dose and duration based mostly on patient characteristics, or do you generally just have a fairly empiric approach you use in most patients?

- A. Guided significantly by patient factors
- B. Fairly empiric for anyone who has an iron deficiency and needs therapy

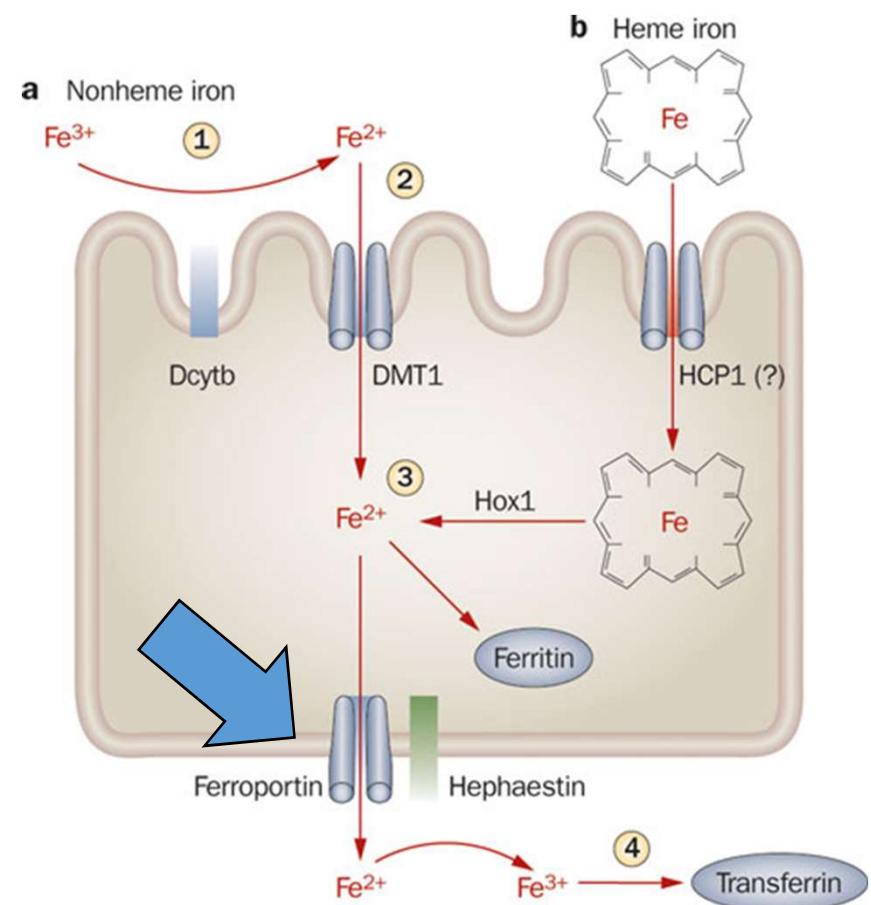
Hepcidin

- An anti-microbial, acute phase protein that has a central role in iron homeostasis regulation.
- Upregulated by
 - Proinflammatory cytokines
 - Mainly IL6
 - Via JAK activation of STAT3

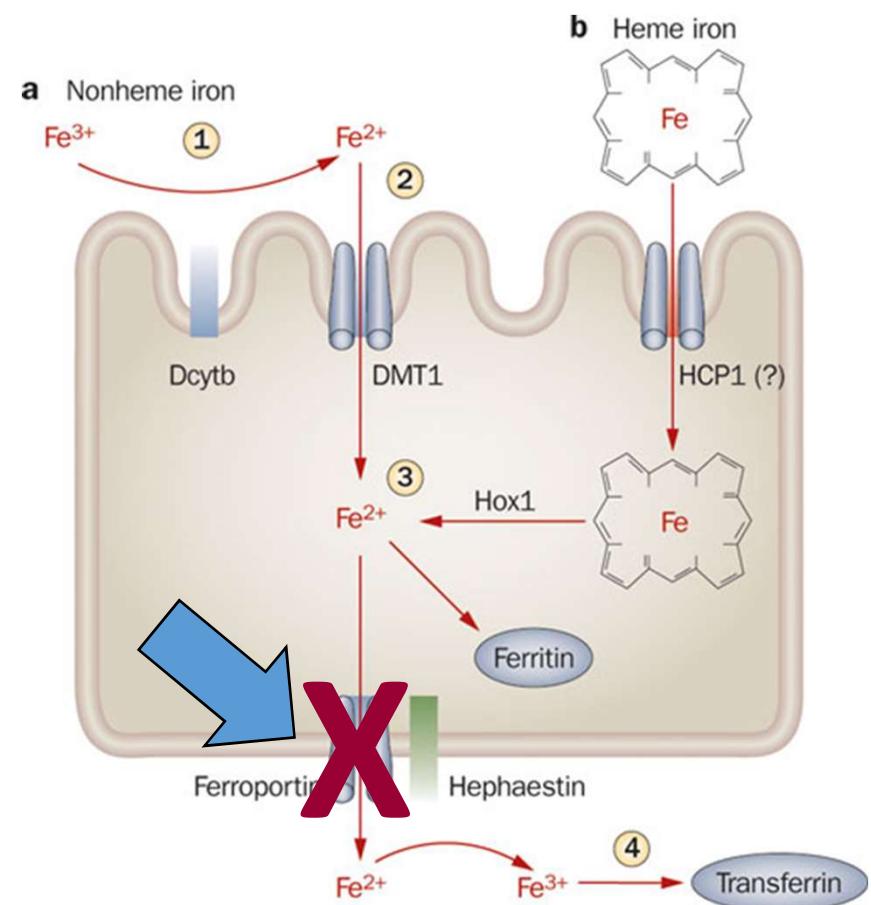
Intestinal Iron Absorption



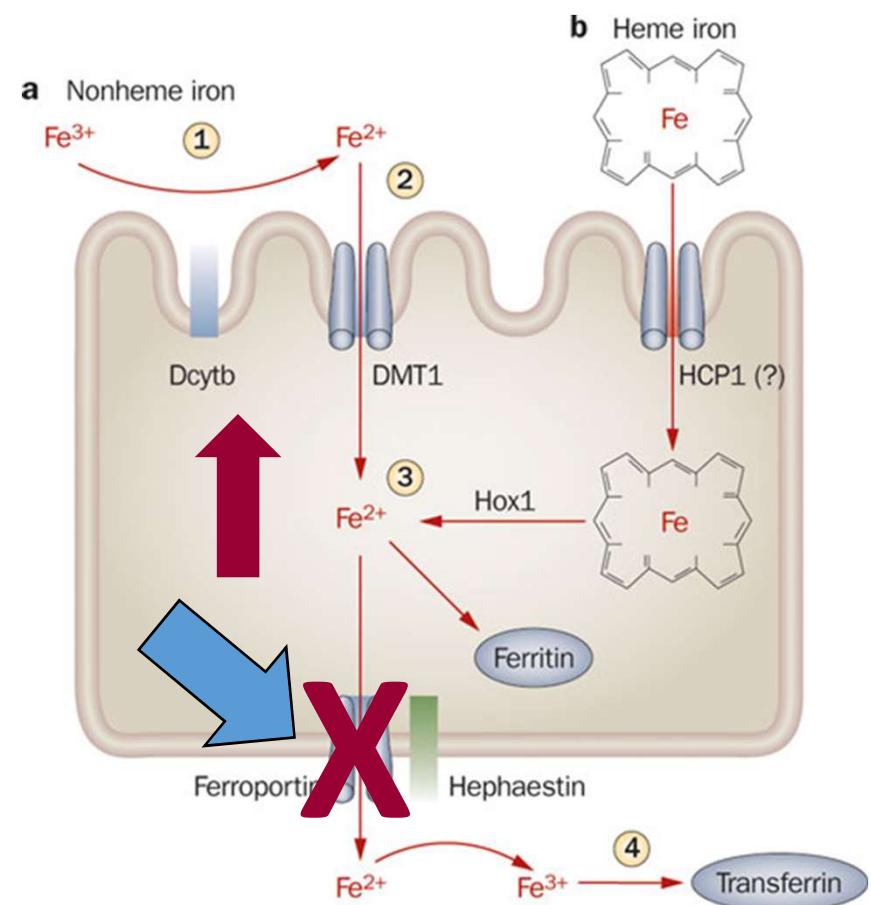
Intestinal Iron Absorption



Intestinal Iron Absorption

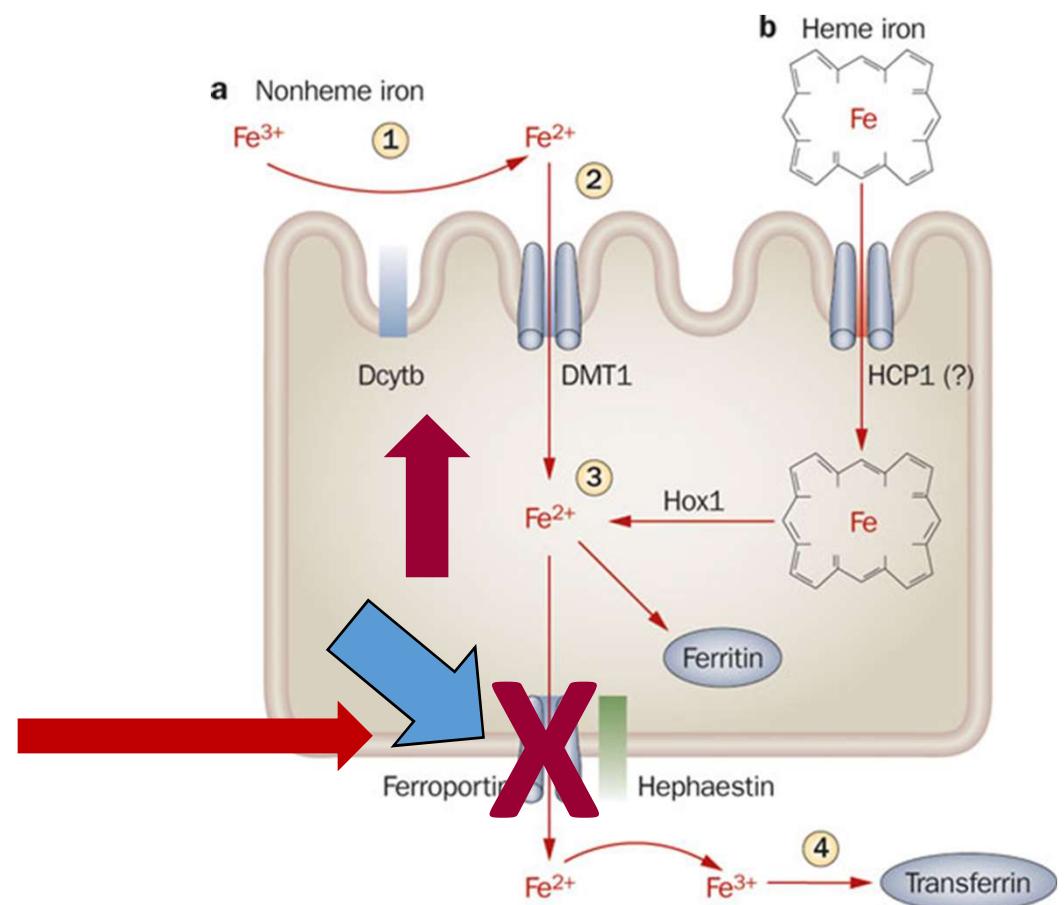


Intestinal Iron Absorption



Intestinal Iron Absorption

Hepcidin

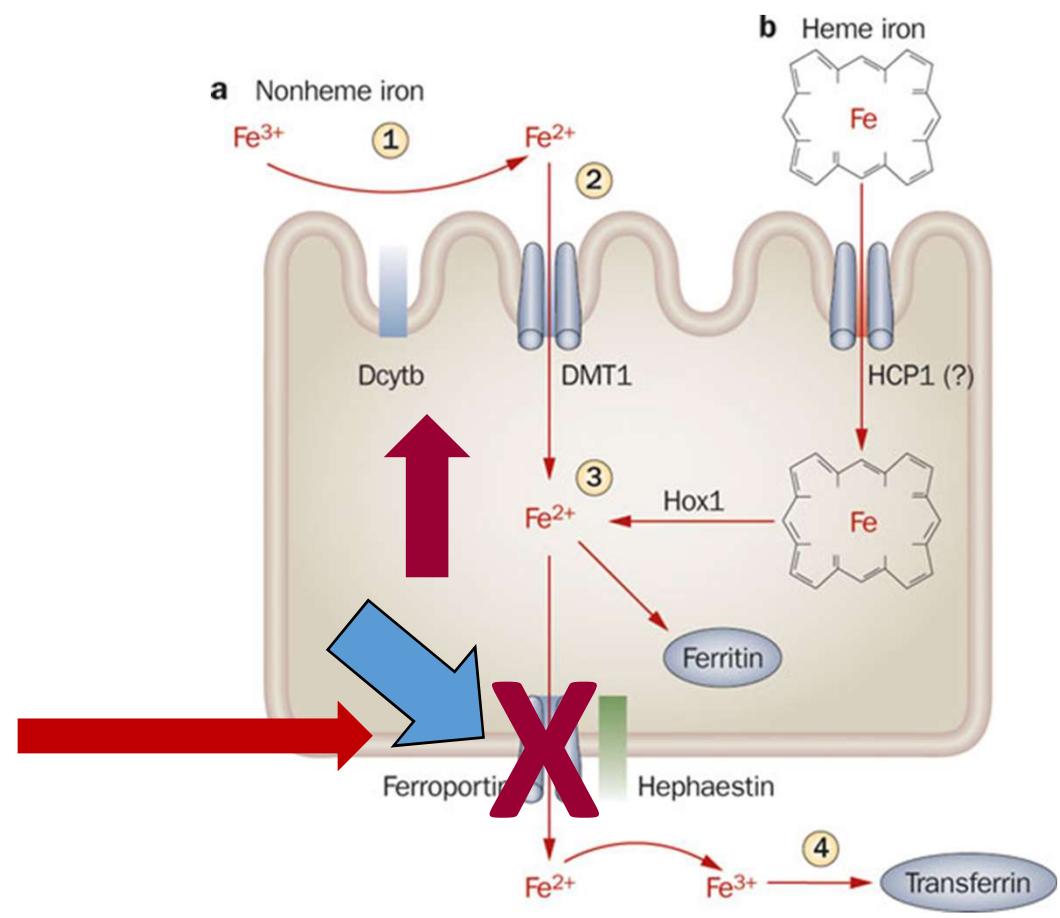


Intestinal Iron Absorption

Inflammation



Hepcidin



Areas to explore

- Do we need more lab tests?
- Is it necessary to treat iron deficiency anemia beyond treating the flare itself?
- What is the most appropriate route of iron supplementation
- Pros and cons for IV iron
- What is the dosing and timing of iron treatment