March 14, 2014

Citron Reports Further Results from Laboratory Testing: Questcor is Deceiving the FDA and Investors

H.P. Acthar Gel's Specified Active Ingredient Less Than 20% of the Label Specification

Bioactivity of Deamidated Hormone Fragment Far Lower than Pure ACTH

The FDA has been Notified

Citron admits that we were nothing short of amazed when we read Questcor's (NASDAQ:QCOR) response to our report on the laboratory assay of HP Acthar Gel, which documented its actual contents. Furthermore, the Street's silence in response to our findings was deafening. No accusations about mishandled samples, no challenges to the credibility of our highly credentialed laboratory, nor any shred of a substantive reply to the harsh reality that Questcor is shipping a mislabeled, mis-dosed unproven drug, marketing it direct to vulnerable, chronically ill patients.

Who in the medical community would have ever guessed that HP Acthar Gel was actually deamidated corticotropin? In its entire decade long history, **Questcor has never once uttered the word "deamidated" -- in presentation or in print, neither to the scientific, medical, nor investment communities.** Yet, in some perverse alternative reality within a pharma universe that only they inhabit, "H.P.", which everyone else thinks means "Highly Purified", is presumably an abbreviation for **deamidated**.

In our first part of this expose', we committed to follow up with further findings about the mysterious components of HP Acthar Gel. In this report, we will again present excerpts directly from a new letter that has been received by the FDA containing these new findings.

After reporting these findings, we will address Questcor's answer to our first report. Their reply was a broadside affront to the scientific community and government agencies that ensure safety of pharmaceuticals.

AS with the first report, the identity of the laboratory, the researchers and the attorney have been redacted, to insure that additional testing can be conducted, and findings submitted to regulators, without obstruction. We encourage all interested parties to file a FOIA request with FDA, to verify this and our prior report. And as before, the information in this report is available to all Federal regulatory agencies upon request.

New Lab Findings Submitted to FDA

The laboratory findings as submitted to FDA are summarized into three pivotal points: These points prove to the FDA that in fact Questcor has either mislabeled H.P Acthar Gel, or does not even know themselves what is in their $30,000 vials.

1) **The Amino Acid Sequence Described in the Package Is NOT Porcine Deamidated Corticotropin.**

2) **The Amino Acid Sequence Described in the Official Package Insert for Acthar Gel Is Not what the Laboratory Found in the Tested Vials of Acthar Gel.**

3) **Acthar Gel Does Not Contain 80 IU/mL of Corticotropin – Deamidated or Otherwise**

With regard to each of these three points, we quote the actual text of the letter submitted, which refers to the specific laboratory findings, also submitted. The letter was authored by a former FDA staff counsel. Everything below in the beige shaded boxes is a verbatim excerpt from letter/findings received by the FDA. Citron presents these excerpts without edit.

1) The Amino Acid Sequence Described in the Package Insert for Acthar Gel, is NOT Porcine Deamidated Corticotropin.

In contrast to Questcor's statement in its SEC filing, the amino acid sequence detailed in the package insert for Acthar Gel does not accurately reflect the sequence for porcine corticotropin or porcine deamidated corticotropin. Rather, the package insert includes a sequence known to be an outdated characterization of non-deamidated porcine corticotropin.

More than forty years ago, the sequence identified in the package insert was believed to be porcine corticotropin. However, B. Riniker et al. demonstrated in a 1972 article "Revised Amino-acid Sequences for Porcine and Human Adrenocorticotrophic Hormone" published in ***Nature: New Biology***, that the amino acids at two positions in the previously published non-deamidated porcine corticotropin sequence had been incorrectly characterized. Prior to Riniker's work, it was thought that there was an aspartic acid (Asp/D) at position 25, and a glutamine (Gln/Q) at position 30. The amino acid sequence that appears in the Acthar Gel package insert follows this outdated characterization.

Prior to the Riniker publication, it was known that porcine corticotropin underwent deamidation, and that reaction had been ascribed to glutamine (Gln/Q) at position 30, which upon deamidation became glutamic acid (Glu/B). Riniker showed, however, that deamidation actually occurred at an aspargine (Asn/N) at position 25, due to the presence of the unstable Asn-Gly amino acid sequence at positions 25-26, converting the asparagine (Asn/N) to aspartic acid (Asp.D).

Accordingly, Questcor's contention that the amino acid sequence in its package insert represents deamidated porcine corticotropin is incorrect.

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2) The Amino Acid Sequence Described in the Package Insert for Acthar Gel Is Not what [the Laboratory] Found in the Tested Vials of Acthar Gel.

More importantly, [the laboratory]'s findings indicate that the active ingredient in Acthar Gel is not even the representative of the amino acid sequence Questcor describes in the package insert. The table below compares three amino acid sequences:

(1) the amino acid sequence described in the package insert for Acthar Gel that represents non-deamidated porcine corticotropin as it was understood prior to Riniker's publication in 1972 (Row A)

(2) the corrected amino acid sequence for non-deamidated porcine corticotropin based on Riniker's research (Row B)

(3) the sequence for the deamidated form of porcine corticotropin that [the laboratory] found in the tested vials of Acthar Gel that we described, *inter alia,* in the December letter (Row C).

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Position	1	2	3	4	5	6	7	8	9	10	11	12	13
Row A	Ser	Tyr	Ser	Mct	Glu	His	Phe	Arg	Trp	Gly	Lys	Pro	Val
Row B	Ser	Tyr	Ser	Mct	Glu	His	Phe	Arg	Trp	Gly	Lys	Pro	Val
Row C	Ser	Tyr	Ser	Mct	Glu	His	Phe	Arg	Trp	Gly	Lys	Pro	Val

Position	14	15	16	17	18	19	20	21	22	23*	24	25	26
Row A	Gly	Lys	Lys	Arg	Arg	Pro	Val	Lys	Val	Tyr	Pro	Asp	Gly
Row B	Gly	Lys	Lys	Arg	Arg	Pro	Val	Lys	Val	Tyr	Pro	**Asn**	Gly
Row C	Gly	Lys	Lys	Arg	Arg	Pro	Val	Lys	Val	Tyr	Pro	**Asp**	Gly

Position	27	28	29	30	31	32	33	34	35	36	37	38	39
Row A	Ala	Glu	Asp	Gln	Leu	Ala	Glu	Ala	Phe	Pro	Leu	Glu	Phe
Row B	Ala	Glu	Asp	**Glu**	Leu	Ala	Glu	Ala	Phe	Pro	Leu	Glu	Phe
Row C	Ala	Glu	Asp	Glu	Leu	Ala	Glu	Ala	Phe	Pro	Leu	Glu	Phe

Row A = Package Insert – non-deamidated porcine corticotropin as understood **prior to 1972**
Row B = **Corrected** amino acid sequence for non-deamidated porcine corticotropin **after 1972**
Row C = Laboratory result actually found in the vials: Deamidated Corticotropin (as described in December letter.

(*) Amino acid #23 is presumably Tyrosine. There is no debate in the literature about the amino acid in position #23. However, the Acthar Gel insert lists this component as "Try"; we give Questcor the benefit of a doubt that this is presumably a typo. Other close abbreviations are "Thr" (Threonine) and "Trp" (Tryptophan), both would be incorrect.

3) Acthar Gel does not contain 80 IU/mL Units of Corticotropin – Deamidated or Otherwise.

Even if FDA determines that deamidated corticotropin is the proper active ingredient in Acthar Gel, as Questcor now claims, [the laboratory] found only a fraction of the amount indicated on the label. [The laboratory] found that the average deamidated corticotropin concentration for the samples tested was approximately 0.21 mg/mL or 16.8 IU/mL, which is only **20%** of the 80 iU/mL concentration required by the FDA-approved package insert. Accordingly, the concerns about the drug's efficacy we raised in the December letter are not resolved by Questcor's recent admission that Acthar Gel contains only deamidated corticotropin as its purported active ingredient.

As before if you have any questions about the laboratory's findings or the test methods it used, we would be more than happy to answer them. Please do not hesitate to contact me with any such questions and we will endeavor to get you answers immediately.

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This is clear scientific evidence that Questcor has misled patients, investors, and most importantly the FDA, about HP Acthar Gel. There is nothing more in the above submissions that needs to be editorialized.

Questcor's Rebuttal

Now that the FDA has all of the information on its desk, Citron will address the appalling 8-K submitted by Questcor after our last report. We will do this by quoting specific lines and adding our commentary.

"Questcor has a strong track record of providing therapies to patients with unmet medical needs."

-- CEO Questcor 8-K March 3, 2014

http://www.sec.gov/Archives/edgar/data/891288/000119312514079081/d685647d8k.htm

What track record? A track record is a pattern quantifiable through actions and results. The only two numbers from Questcor relevant to this matter that can be "tracked" are:

Total insider sales since Jan 2010: $249,632,222.00

Total clinical trials completed since the acquisition of HP Acthar Gel: 0

That is a track record.

"The key point often overlooked in all of this background noise, however, is something that Questcor employees hear regularly from doctors - that Acthar often helps patients with serious medical conditions who are in need of an alternative treatment option. After decades of neglect, the drug has found a small but important niche for doctors to employ in managing some of their most difficult-to-treat patients, and it is quite often helping people who are very sick and have no other treatment options. From the regular reports that we hear from doctors, we know that many patients are being helped by the continued availability of Acthar."

-- CEO Questcor 8-K March 3, 2014

http://www.sec.gov/Archives/edgar/data/891288/000119312514079081/d685647d8k.htm

What is this, a restaurant recommendation? What you "hear" from doctors? What doctors? The ones you pay to speak at the many Olive Garden and Red Lobster speakers' bureau engagements? What's next ... Are they are going to say that HP Acthar Gel has good Yelp Reviews?

Proving safety and efficacy as required by the FD&C Act is more than "what we hear from doctors". It requires rigorous scientific proof – and for numerous good reasons. Further, it requires explicit specification of, and rigorous adherence to, complete and accurate disclosure of active ingredients, so precise dosages can be rendered.

Further note to Questcor: Yes, Citron receives unsolicited letters from patients who have not been helped, or worse, state they have been personally harmed by H.P. Acthar Gel. We have the good judgment not to draw conclusions from these letters, because we know such communications do not stand the test of scientific rigor. Citron questions why such letters have never been submitted by Questcor to the FDA's Adverse Events database.

More importantly, contrary to the doctors that Questcor "hears" from are the many scientific and medical brain trusts who comment that they recognize no specific benefit of HP Acthar Gel over synthetic ACTH or steroid therapies. (all documented in previous Citron articles)

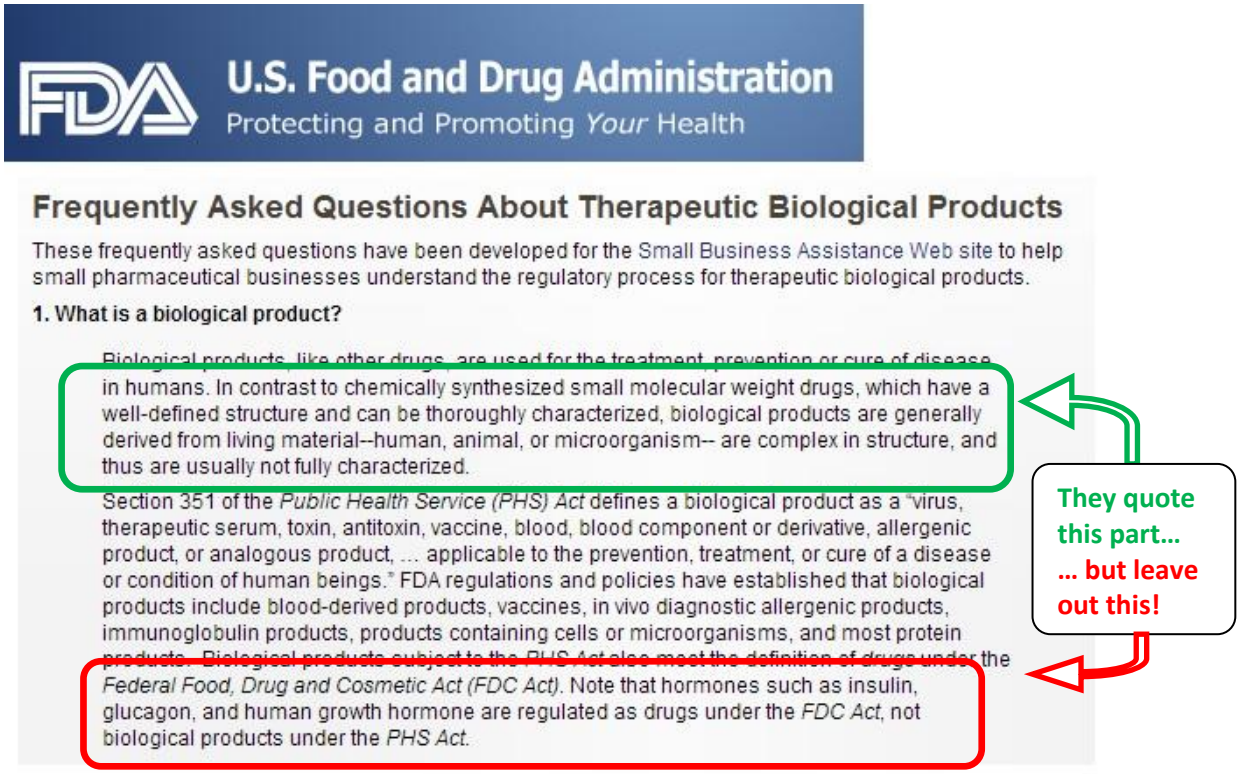
" Therefore, what the short sellers' research firm claims to have found appears to be consistent with what is specified on the FDA-approved Acthar package insert.

Acthar is a naturally-derived, complex peptide formulation that is not yet fully understood. This is not unusual for naturally-derived products. As the FDA notes on its website, "In contrast to chemically synthesized small molecular weight drugs, which have a well-defined structure and can be thoroughly characterized, biological products are generally derived from living material - human, animal, or microorganism - are complex in structure, and thus are usually not fully characterized."

-- CEO Questcor 8-K March 3, 2014

The lab's assay was definitive: The material in the vials is most definitely <u>not</u> the same amino acid sequence that is on the HP Acthar Gel label.

Questcor goes on to quote the FDA website, with regard to their attempt to establish a claim of a "biological product" :



http://www.fda.gov/Drugs/DevelopmentApprovalProcess/%20HowDrugsareDevelopedandApproved/ApprovalApplications/TherapeuticBiologicApplications/ucm113522.htm

Wait a minute…what does that label actually say ????

We thought so. Not just "Purified", but "Highly Purified". Oh wait. Depends where you're reading!

If you look on the label, yes, but if you read the 10-K…hmmm…. it **used** to say it was **"highly Purified**".

But **most recently** management has stricken that threatening word "**highly**" from its 10-K:

> Acthar bulk concentrate, the active pharmaceutical ingredient, or API, used in Acthar, is processed in several stages to produce a purified raw material for formulation.
>
> *-- Questcor **2013** 10-K*

http://www.sec.gov/Archives/edgar/data/891288/000125582314000005/questcor-10k2013.htm

> Acthar bulk concentrate, the active pharmaceutical ingredient, or API, used in Acthar, is processed in several stages to produce a highly purified raw material for formulation.
>
> *-- Questcor **2012** 10-K*

http://www.sec.gov/Archives/edgar/data/891288/000150237513000004/questcor-10k2012.htm

It's up to investors to speculate as to why that word **"highly"** is suddenly too controversial to describe Acthar any longer….even though it's still on the label as you can see above. Look, that's what H.P stands for: **HIGHLY PURIFIED**. But PURIFIED WHAT?

Spontaneous Remission and H.P. Acthar Gel

Spontaneous remission is a medically recognized factor in both nephrotic syndrome and exacerbations of multiple sclerosis, the two highest revenue generating sources for Questcor from its marketing campaigns for H.P Acthar Gel.

"Spontaneous remission is a well known characteristic of idiopathic membranous nephropathy, but contemporary studies describing predictors of remission and long-term outcomes are lacking."

In conclusion, spontaneous remission is common among patients with nephrotic syndrome resulting from membranous nephropathy and carries a favorable long-term outcome with a low incidence of relapse. A decrease in proteinuria >50% from baseline during the first year predicts spontaneous remission.

--JASN: Journal of the American Society of Nephrology
April 2010

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2844306/

See also: http://www.irtces.com/multiple-sclerosis.htm

Note that while Questcor has chosen to expand their aggressive marketing efforts for indications well known for spontaneous remission, they have the audacity brag that "doctors often claim their patients get better".

First, are these the doctors who are paid on the Speakers' Bureau circuit, or receiving subsidized vials to inject patients at their offices? It certainly wasn't the conclusion of Aetna and Tricare, who have significantly reduced or completely eliminated this drug for reimbursement in their new policy statements.

There are serious medical as well as financial consequences here. These matters call out for rigorous scientific inquiry, in the form of double-blind studies comparing H.P. Acthar Gel with steroid therapy, synthetic ACTH and placebo treatment arms. In the absence of such scientific evidence, the intense and increasing scrutiny of insurers and government agencies is unavoidable.

Questcor's business model, however, is dependent on these studies **never being undertaken**.

Citron observes that it is commonly said that if you treat a cold, it will disappear in a week, but if you leave it alone it will last for seven days

Conclusion

More deception from Questcor's "Department of Defense":

"Questor's research and development program will continue to require significant investment of time and resources, including financial resources."

-- CEO Questcor 8-K March 3, 2014

Questcor spends about $6,000 per vial marketing the product. But it also supports a culture of massive insider sales generated from massive below-market option grants to the CEO and other insiders, which are typically cashed in as rapidly as they are vested. To put this in perspective: The salary of the head of the FDA for every year since its inception a century ago could be paid with just the money generated by CEO Don Bailey's insider sales last year.

Questcor engages in no meaningful R&D to identify the "real ingredients" in H.P. Acthar Gel. It has been 13 years since Questcor has been the custodian of this "panacea", and yet there is still no completed credible objective clinical testing on it.

Meanwhile, Questcor continues to be exposed to severe risks in its dependence on HP Acthar Gel as its only source of revenue. It is Citron's opinion that the product is exposed to severe risk of being pulled off the market and subjected to a new and rigorous round of clinical trials, with trial design requiring pre-approval by FDA, before its aggressive marketing and sales effort in the U.S. can be continued.

Meanwhile the following investigations remain open and unexplained:

- **Department of Justice, Southern District of New York Office**
- **The Securities and Exchange Commission**
- **… and possibly the Federal Trade Commission.**

Cautious Investing to All

***** As for invoking the word "short attack" in its 8-K, Citron did not address the issue because this is no longer a "long vs short debate". This is a search for the truth in what is inside a vial of a mystery drug product that has been aggressively marketed to the chronically ill with a price tag that "attacks" the US healthcare system.**