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From: [Miller-Saunders, Kristi](#)

Sent: Mon 6/27/11 10:19 AM

To: ['Marty, Gary D AGRI:EX'](#)

Cc:

Subject: RE: FINAL "unblinded" FR sockeye histopathology results 2011-2111

Attachments:

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In general, what percentage of mortality events in aquaculture are NOT ascribed to a specific pathogenic organism?

Christine McWilliams made the rather bold statement at a meeting that all pathologies relating to sockeye salmon mortality events could be ascribed to known pathogens, and in her view, all pathogens affecting sockeye are already characterized; i.e. there is no room for "novel undescribed" pathogens. Do you agree with this viewpoint? It would seem to me that there are likely mortality events (e.g. the jaundice syndrome in cultured Chinook here and in Chile, possibly marine anemia--but I know that you don't believe it truly exists) that we don't fully understand, that uncharacterized pathogens, especially viruses that are hard to visualize and sometimes difficult to culture, could be involved in some cases.

In some of your reports, you have used the term ISA-ish. Do you think that fish that carry the pathology associated with your use of this term might be affected by an undescribed pathogen?

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-----Original Message-----

From: Marty, Gary D AGRI:EX [<mailto:Gary.Marty@gov.bc.ca>]  
Sent: June 27, 2011 10:06 AM  
To: Miller-Saunders, Kristi  
Subject: RE: FINAL "unblinded" FR sockeye histopathology results 2011-2111

Hi Kristi,

An important part of my role as a diagnostic pathologist is to point out the most likely for a lesion that I diagnose; this is commonly referred to in medicine as my primary differential among a list of differentials.

Autoimmune disorders can cause or facilitate development of a wide variety of lesions, and the pathogenesis of these lesions is poorly understood even in widely studied species like humans. I suppose that it is possible that an autoimmune disorder could cause adhesions in fish, but that would be very low on my list of differentials. Instead, I would focus more on things like parasites that are much more common (likewise, when I hear hoof beats in BC, I think of horses before I think of zebras).

Best regards,

Gary

-----Original Message-----

From: Miller-Saunders, Kristi [<mailto:Kristi.Miller@dfo-mpo.gc.ca>]

Sent: Monday, June 27, 2011 9:39 AM  
To: Marty, Gary D AGRI:EX  
Subject: RE: FINAL "unblinded" FR sockeye histopathology results 2011-2111

If adhesions reflect chronic inflammation, is there any way that they could be associated with an autoimmune disorder?

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-----Original Message-----

From: Marty, Gary D AGRI:EX [<mailto:Gary.Marty@gov.bc.ca>]  
Sent: June 27, 2011 9:34 AM  
To: Miller-Saunders, Kristi  
Subject: RE: FINAL "unblinded" FR sockeye histopathology results  
2011-2111

Hi Kristi,

Adhesions are part of chronic inflammation, usually in response to foreign material in the peritoneal/coelomic cavity. In farm fish, adhesions are common after injected vaccination. In wild fish, I suspect that adhesions are most commonly a reaction to parasites (e.g., *Anisakis* spp.), but adhesions can also result from a bacterial infection or from a ruptured yolk sac. By the time that adhesions form (late in the inflammatory process), the inciting cause is often not obvious because the parasite (or other cause) has been mostly dissolved, but the reaction to molecular remnants remains.

Best regards,

Gary

-----Original Message-----

From: Miller-Saunders, Kristi [<mailto:Kristi.Miller@dfo-mpo.gc.ca>]  
Sent: Wednesday, June 22, 2011 9:48 AM  
To: Marty, Gary D AGRI:EX  
Subject: RE: FINAL "unblinded" FR sockeye histopathology results  
2011-2111

Out of curiosity, when we observe the adhesion of organs within the body cavity of fish, what are potential causes of this? Is this something that carries a common histological signature, or can you even tell?

Kristi Miller