

NCTF 8th On-line Session Transcript
Joined on March 20, 2008 at 9:00 PM

Abraham E CO: So, are we doing this like last time, where it'll be Dr. Mehlman for an hour and then Dr. Kulinowski for the 2nd hour?

Moderator: Yup

Moderator (Patrick Hamlett) to Dr. Melman: Max: Welcome. This is a private message. To talk to the group, make sure that "This Room" is selected next to "Send." You will be up first. Have you been able to alter your screen?

Moderator (bob): Team 4 will be first up tonight, as you see on the slide. Get those questions ready.

Moderator (Patrick Hamlett): I will turn off everyone's chat in a moment, and then turn Team 4 on...

Moderator (bob): Team 4 is now being activated. All others will not be chat active.

Tara V CO to Patrick Hamlett, bob, Tina Ndoh: Hi Dr. Mehlman. Do you think it will be necessary to create a new regulatory body to monitor NBIC's?

Moderator (bob): The slide currently up is for the second hour.

Moderator (bob): Note the ground rules slide. Just a reminder.

Tara V CO: Hi Dr. Mehlman. Do you think it will be necessary to create a new regulatory body to monitor NBIC's?

Tara V CO to Patrick Hamlett, bob, Tina Ndoh: Sorry about that.

Moderator (bob): We are now ready for Team 4's questions for Dr. Melman,

Catherine J NH to Patrick Hamlett, bob, Tina Ndoh: I sit possible to have that expert's response on the screen while the chat happens?

Dr. Melman to Patrick Hamlett, bob, Tina Ndoh: Hi Tara. Not necessarily. But we need to make clear which existing regulatory bodies have jurisdiction over which technologies, and make sure that the regulators have the authority and expertise to promote the public interest.

Moderator (Tina Ndoh): Dr. Melman's response: Hi Tara. Not necessarily. But we need to make clear which existing regulatory bodies have jurisdiction over which technologies, and make sure that the regulators have the authority and expertise to promote the public interest

Moderator (bob) to Dr. Melman: Dr. Melman you need to select "This room" next to the send button. Your response came only to the moderators.

Jennifer C GA: Since a risk is just that - a risk - does any possibility exist that might provide a 'warning' of such as to any risks that might become, well, one that cannot be contained/dealt with/controlled?

Dr. Melman: Sorry. I had it selected but it de-selected itself.

Jennifer C GA: Oh, sorry, I was still formulating my question and am not happy with it so please disregard. Tnks.

patrick m CO: Hello Dr: We have heard there are great medications using nanotechnology particularly cancer drugs. How long until they are available to everyone?

les k wi: hello all!

Moderator (Tina Ndoh) to les k wi: Welcome Les, feel free to ask any questions you may have to dr. Melman

Santiago M AZ: DR. It seems as if the FDA would be the primary branch in charge of regulating future development as they reach the public. How much more authority and oversight would the FDA require to successfully regulate NBIC technology? as well as funding, which seems to be a major problem as well

Dr. Melman: I am not an expert on nanotech, but I would be very skeptical about any predictions that nanotech medicine is "just around the corner." In 2000, Francis Collins, the director of the National Human Genome Research Center at NIH, predicted that we would be in the era of "genomic medicine" by 2010. But then some things went wrong, and we discovered that other things were much more complicated than we had taught.

Dan W NH: what is the chance of being able to regulate this new technology at all? What would stop someone from just going overseas or somewhere where regulation is more loose to use the new developed resources? ex. stem cell research is regulated heavily here, so people go over to Asia to get procedures performed.

patrick m CO: thanks!

Emily H NH: Dr Melhman - Can you tell me what you mean by things being more complicated? In what sense?

alex r CO to Patrick Hamlett, bob, Tina Ndoh: and what wnt wrong???

Jennifer C GA: We speak in such broad, generalized terms. When you get right down to it - individuals - how precise will/can any/each of these technologies really be? When complications arise - how soon might they be recognized (advance warnings?) and . . . I am having trouble formulating my thoughts tonight, apparently. Sorry again.

Dr. Melman: In terms of additional authority, Congress would have to make clear that the FDA had jurisdiction over technologies that straddled the line between drugs/devices/biologics on the one hand, and the practice of medicine on the other. As for funding, the FDA has many competing regulatory functions, and it's stretched very thin as it is. I don't think we'd want to reduce its resources for its existing obligations, so the question is whether Congress would make sufficient funds available to enable it to broaden its authority.

Moderator (Patrick Hamlett): Dr. Mehlman recently hurt his arm, so his responses may be a bit slow...

Santiago M AZ: as new enhancements come about, i suppose we can expect their prices to be considerable out of reach for most people. What do you believe would be the best way to allocate these resources (enhancements)?

Jennifer C GA: The best way and/or the fair(est) way?!

Emily H NH: Dr Mehlman - is there anything in the works that you know of, besides the President's Council on Bioethics (?), that will play a judicial role in the regulation of nanotech or bioethics??

Dr. Melman: Dan: You've got a good point. As a practical matter, it is almost impossible to interdict foreign access. It's even got a name: "NBIC tourism." But consumers will gravitate toward the sources of technology that they think will be the safest and most effective. So if we concentrate on ensuring that the technologies available here are as safe and effective as possible, people will feel less need to travel abroad.

les k wi: and what's gonna keep lobbyists from getting there hands in nanotech ?

Moderator (bob) to les k wi: Les - Not sure what you mean by that question about lobbyists. Can you clarify?

David C. AZ to Patrick Hamlett, bob, Tina Nдох: hello, sorry that i am late but i missed the first 12 minutes or so

les k wi: well i have read that the FDA has been lobbied many times before to release certain prescription meds and many people died because of it are we gonna be able to stop this from happening to a potentially more dangerous technology?

Dr. Melman: Emily: In terms of genetic technologies, in 2000 we thought that there were around 100,000 human genes-- 1 for each protein. Then we realized that there were only about 26,000 human genes, and it turned out that the same gene could carry the instructions to make more than 1 protein because the building blocks of proteins came in more than one shape. This was a complete surprise. Also, we used to think that the regions of DNA between the genes had no function. We called them "junk DNA." Then we discovered that they played a critical function, that they

actually told the genes when to turn on and off, and controlled other aspects of gene functioning.

Moderator (Tina Ndoh) to David C. AZ: David the entire chat transcripts will be posted on the website.

David C. AZ to Patrick Hamlett, bob, Tina Ndoh: when will group four be active?

Moderator (Patrick Hamlett) to David C. AZ: David: Team 4 is active right now!

David C. AZ to Patrick Hamlett, bob, Tina Ndoh: thank you

patrick m CO: cool!

Emily H NH: that brings up an interesting spin on how we think we can regulated these technologies now as opposed to what we we learn later

les k wi: kind of scary

Santiago M AZ: what would be the social implications of developing the technology to alter and modify the DNA at will? would it require further developments from the regulatory standpoint and if so which kind?

Dr. Melman: Les: Yes, there is an ongoing battle between those who say that competent persons ought to be allowed to make their own decisions about whether to take risky new drugs without having to wait for FDA approval. There was a lawsuit fought out last year in the federal courts in DC over whether people have a constitutional right to try to save their lives by taking experimental drugs that have only gone through the preliminary phases of FDA testing. At first the court sided with the plaintiffs and said that the FDA could not stop them, but then the court reconsidered and ended up backing the FDA's traditional stance.

Santiago M AZ: what is the argument supporting the court's decision?

patrick m CO: The last experts talked about brain chips. Who are their test subjects, and how are they testing them?

David C. AZ: yes, i was wondering, is the current trend in the market and industry a prudent approach or more frivolous in the technologies it is producing? are there many instances of examples like you mentioned happening?

Moderator (bob): Team 4 - We are about five minutes from handoff to Team 5. Dr. Mehlman has more questions queued up than he can answer, so refrain from introducing new ones.

Santiago M AZ: I don't see Dr. Mehlman in the participants window, is he still here?

Moderator (bob): Houston - we have a problem. Dr. Mehlman may have been bounced out of the system. Hang on.

Jennifer C GA: Uh oh@

les k wi: hate it when that happens

Moderator (bob): Sorry folks, but we'll have to hand off to Team 5 now. Dr. Kulinowski will be on line & Team 5 can address questions to her.

Catherine J NH to Patrick Hamlett, bob, Tina Ndoh: Dr, Mehlman, hello. This is a broad question, but I wonder what thoughts you have regarding the interaction of nanotech. Remediation and often "mis-managed" care?

Moderator (bob): Team 5 - You are now active. Dr. Kulinowski is up. We'll try to get Dr. Mehlman back on line in the second hour.

Virginia P WI to Patrick Hamlett, bob, Tina Ndoh: Is there specific research being conducted on the lifecycle of nanomaterials? Who? Where?

Catherine J NH: Could you talk a little more about the life cycle of nano materials?

charles az: i got a question for the doc

Rose M CO: What are the considerations given to the potential psychological disorders that might follow the introduction of nanotechnological innovations? Will the stress levels of animal and plants also be monitored? Will these effects on human, animal and plant life be addressed concurrently with NBIC R&D?

Charles P CA to Patrick Hamlett, bob, Tina Ndoh: Doctor, Do we know wher in particular these nanoparticles tend to collect in the human bodu?

charles az: how much control will nanotechnology have on our society?

Foster F GA to Patrick Hamlett, bob, Tina Ndoh: Dr K; noted in your posted response the tox issue with "macro" nano vs "micro nano" In your opinion does this lead to a "the chemistry/biology" is not truly understood?

Virginia P WI to Patrick Hamlett, bob, Tina Ndoh: Again...is there specific research being conducted on the life cycle of nanomaterials? Who? Where?

Andrea C WI: Hello Doctor. I would like to know a little more about the toxicity of certain nano particles, such as carbon nanotubes. I read recently that new research may suggest they can be toxic on a cellular level. That's a concern that the FDA does not seem to have the resources to properly address...

Kristen Kulinowski to Patrick Hamlett, bob, Tina Ndoh: Life cycle is a term that is used to define what happens to something from "cradle to grave" or from manufacture, through use and on to disposal Life cycle is a term that is used to define what happens to something from "cradle to grave" or from manufacture, through use and on to disposal

Charles P CA: What is the best guess impact on the human body? What are the supposed risks?

Moderator (Tina Ndoh): Message from Dr. Kulinowski: Life cycle is a term that is used to define what happens to something from "cradle to grave" or from manufacture, through use and on to disposal Life cycle is a term that is used to define what happens to something from "cradle to grave" or from manufacture, through use and on to dispos

Catherine J NH: Hello, Dr. K. How about specific means of disposing of nano waste?

Moderator (Tina Ndoh) to Kristen Kulinowski: Sorry, we didn't have you chat active, your messages should now go to the entire room

Foster F GA to Patrick Hamlett, bob, Tina Ndoh: Dr K; are you concerned that a true expert agency does NOT exist to render opinions on "going forward" and if so what do you recommend

Kristen Kulinowski: Ah I think I can talk to you all now. OK life cycle. Life cycle is a term that is used to define what happens to something from "cradle to grave" or from manufacture, through use and on to disposal. So if one wants to address ALL the potential impacts from NMs one must look at the whole life cycle to get the full picture

Virginia P WI to Patrick Hamlett, bob, Tina Ndoh: are the questions quod up, or are we to keep asking?

charles az: are the testings on nanotechnoloy accurate for human beings?

Moderator (Tina Ndoh) to Foster F GA: Foster, make sure you send your comments to the entire room

Foster F GA: sorry

Moderator (Tina Ndoh): From Foster F; are you concerned that a true expert agency does NOT exist to render opinions on "going forward" and if so what do you recommend

Kristen Kulinowski: Re toxicity of carbon nanotubes: there have been studies showing nanotubes to be toxic to cells in culture and under certain under controlled settings. While no incident of harm to a humna has ever been documented as a result of exposure to nanotubes, enough experiments in culture, etc have been done to warrant caution. This may seem odd given that there are many exciting medical APPLICATIONS of carbon nanotubes.

Moderator (Patrick Hamlett): Dr. Mehlman is trying to get back on line. We'll continue with Dr. Kulinowski for this half hour, and go back to Dr. Mehlman at the top of the hour...

charles az: Is there a limit to nanotechnology? Will this be the last step in finding cures for certain things that diminish the earth's population?

Moderator (Tina Ndoh) to Virginia P WI: Virginia, make sure you send your comments to the entire room

Foster F GA: Tina: would you post my? ref macro vs micro nano to the room? thanks F

Moderator (Tina Ndoh): From Virginia P: Again...is there specific research being conducted on the life cycle of nanomaterials? Who? Where?

Virginia P WI: Is there specific research being done on the lifecycle of nanomaterials? If so, who? Where?

Kristen Kulinowski: Best guess for impact on humans? Unknown. Some are being explored as drugs and medical devices, others are showing toxicity that might limit their use in the human, Sometimes the same nanoparticle can be shown to be toxic or not depending on many factors including size, and surface coating.

Moderator (Tina Ndoh): From Foster F r K; noted in your posted response the tox issue with "macro" nano vs. "micro nano" In your opinion does this lead to a "the chemistry/biology" is not truly understood?

Virginia P WI: Please explain surface coating...

Foster F GA: thanks Tina

Catherine J NH: Dr, .K--How about specific means of disposing of nano waste? Has anything been developed?

Moderator (bob): Be patient folks - You have a lot of questions, but Dr. Kulinowski can only answer one at a time.

Catherine J NH: Can we focus on the active chat people please?

Kristen Kulinowski: Not a lot of specific research on lifecycle yet but a lot is underway. Some very early work was done at Carnegie Mellon U on using carbon nanomaterials in automotive tech. Recent work on producing carbon nanotubes showed that they may produce by-products that are known toxins. So it might always be the nanoparticle itself that's the problem but the way it is produced. That's why lifecycle assessment is important

Tamara R AZ: Have we found Nano particles to be broken down to be either more of a toxic nature or a positive nature? From what we currently know does it seem to lean more from one side to another?

Moderator (Tina Ndoh) to Catherine J NH: Catherine, these are all active chat participants who accidentally sent message to moderators instead of the entire room

Catherine J NH: Ok--sorry.

Richard S GA: Dr. Kulinowski -- the same way we study the effects of POLLUTION and each person's CARBON FOOTPRINT on the environment it seems like there will have to be a WHOLE OTHER dept that studies and deals with the impact of these "nano" byproducts in the environment. Example: would there be any risk of things like those "gold nanoshells" being excreted in urine & human waste affecting other things like FISH and other wildlife in the environment.

Kristen Kulinowski: Some NPs break down to harmless components. To the extent that carbon particles break down we might expect them to yield fairly benign products. Unlike Cadmium selenide because we know cadmium ions are bad actor in the environment. Not a lot has been done on the fate of NP in the environment, though, so a lot more work is needed to answer that question more broadly

charles az: what is the best form of nanotechnology?

Kristen Kulinowski: Richard, yes we might need to be concerned about that, in the same way that we are now understanding that excretion of pharmaceuticals can CAUSE developmental impacts on aquatic life. So we should not assume there will be no risk. We really need to study it to make sure

Foster F GA: So if not a lot has been done have the researchers turned a blind eye to post effects in lieu of "this is neat"

Kristen Kulinowski: No, there is a growing research community all ready to engage in this research with growing federal investment in the research. But I have to say that some people assume that if no harm HAS been shown, no harm WILL be shown and I think NMs are too novel and interesting to make the assumption

Andrea C WI: Are some of the possibly toxic carbon nanotubes currently on the market? I have concerns that the general public may be unwitting guinea pigs, much the same way we were with asbestos. It took decades for the manufacturers to finally say, "Whoops, this stuff doesn't biodegrade in the lungs -- our bad."

Catherine J NH: Is there any way to re-direct funding towards effective disposal of nano by-products?

Foster F GA: thank you thank you; I like the chemistry but have concerns

charles az: oh thanks

Kristen Kulinowski: There are products on the market that have nanomaterials in them but before you panic consider whether you are exposed to them. There are a lot of really nasty things in this computer I'm using but they're not jumping out at me. It's about hazard AND exposure.

Catherine J NH: Good point, Dr. K.

Abraham E CO to Patrick Hamlett, bob, Tina Ndoh: Dr. Kulinowski, do you have any specific examples of nanoparticles being used in human enhancement/remediation technologies and research?

Abraham E CO to Patrick Hamlett, bob, Tina Ndoh: damn it, sorry guys

charles az: will nanotechnology completely defeat the purpose of pharmaceutical medicine? I sure hope not

Kristen Kulinowski: Disposal of nanomaterials is being considered in the larger context of lifecycle but it's not a huge area of interest yet to tell the truth. Most of the action is in toxicology/

Moderator (Tina Ndoh) to Abraham E CO: Abraham, copy and paste your message back to the room, let me know if you need help

Kristen Kulinowski: charles az not sure what you mean

Abraham E CO: Dr. Kulinowski, do you have any specific examples of nanoparticles being used in human enhancement/remediation technologies and research?

Kristen Kulinowski: none spring to mind. Mostly I'm aware of therapeutic or diagnostic medicine for fairly common issues like cancer

Foster F GA: so you are using toxicology in the broad sense to include teratogenic, carcinogenic, etc

Kristen Kulinowski: FosterF yes. Not a lot has been done yet on teratogenic but it is a growing area of interest

charles az: like will there still be a purpose for pills

Andrea C WI: Regarding exposure isn't there nanotech. Used in some makeup? How much more exposure could there be than rubbing something on your skin? More specifically, I purchased deck stain made with nanotech. You can certainly bet that "exposure" is a concern when my two girls are running all over it this summer. I guess my comment is that the FDA should be more vigorous with this technology but it sounds like they are not.

Foster F GA: How can we not R&D the terato, etc with this new technology

Catherine J NH: Good point, Andrea.

Kristen Kulinowski: Some see nanotech as a way to do personalized medicine. A very cool application is cancer diagnosis and treatment with a single noninvasive technique (gold nanoshells), Not sure nano will ever replace pills though

Catherine J NH: I don't see the pharm companies letting that happen.

Kristen Kulinowski: Andrea, THE biggest concerns most consumers have is in products directly applied to the skin such as sunscreens and cosmetics. I'm not saying they are the most risky, but it is reasonable that people have the greatest concerns about exposure

Catherine J NH: Dr. K. How available are these gold nanao shells to the general public?

Foster F GA: Dr K; you're opinion on the ABILITY of the FDA as it exists today to regulate, recommend, control., etc NANO

Kristen Kulinowski: FDA is doing what it can to come up to speed on nanotech. It simply does not have the regulatory authority to deal with a lot of the over-the-counter nano containing materials.

charles az: do anyone involved in creating nanotechnology feel somewhat guilty that they are playing god by making designer babies

Kristen Kulinowski: gold nanoshells are still in clinical trials. Probably be 5 years or so

Catherine J NH: Thank you, Dr. K.

Kristen Kulinowski: No one i know is making designer babies with nanotech

Foster F GA: DrK thanks but I am referring to NANO at a higher level than OTC; FDA, can they do it or not. I know this is tough

Moderator (bob): We are 5 minutes from handoff to Team 6.

Kristen Kulinowski: Foster F to return to your question about terato. Developmental effects are now getting more attention so I'm confident we'll have more info in a couple of years

Moderator (bob): Dr. Mehlman has still not been able to get back, so Team 6 will continue with questions for Kulinowski.

Catherine J NH: Foster, the last expert was more connected with regulation (FDA).

Andrea C WI: Can you think of a specific product that contains nanotech. That the FDA did NOT regulate in any way? I am just wondering what kind of product bypasses the FDA safety protocols.

charles az: well i heard that designer babies are being created is that true and if so do you think it is necessary?

Kristen Kulinowski: FDA does not regulate food supplements so if you take a product that contains NanoSilver Collidal Health Drink (or whatever) it is not regulated

Foster F GA: Thanks Dr. K; keep up the good work: r&d guy

Tamara R AZ: Good? Andrea? I would like to know the answer as well.

Moderator (bob): We are now making the change to activate Team 6. Hang on.

charles az to Patrick Hamlett, bob, Tina Ndoh: what a rip off

Moderator (bob): Team 6. You will be directing questions to Dr. Kulinowski. With luck, Dr. Mehlman will be back at the bottom of the hour. If not, we'll try to get him for Tuesday.

Foster F GA to Patrick Hamlett, bob, Tina Ndoh: Easter is a break correct

Moderator (bob): Team 6. You are active.

Terry R AZ to Patrick Hamlett, bob, Tina Ndoh: terry R AZ will human cremation be adequate to destroy nano particles?

Moderator (bob) to Foster F GA: Yes, no session Sunday.

Jennifer T NH to Patrick Hamlett, bob, Tina Ndoh: is Dr. Kulinowski here?

Madhavi D WI: Hi Dr. Kulinowski, where are we headed in terms of NT? Do the researchers/investors have specific goals in mind?

Moderator (Tina Ndoh): From Terry R: terry R AZ will human cremation be adequate to destroy nano particles?

Kristen Kulinowski: investors: make money; researchers: do cool science and (maybe) make money

Moderator (Patrick Hamlett) to Terry R AZ: Terry: Make sure you send your messages to "This Room" so everyone can see them

Kristen Kulinowski: some nanoparticles may be transformed by fire other may stay intact

kokila r GA: If nanomaterials can be used for pollution control, will it be possible to channel more public funding towards

environmentally beneficial projects as opposed to "enhancement" type of projects?

Kristen Kulinowski: there is already more money going toward enviro applications than enhancement I would guess

Moderator (bob): Team 6? Any more questions?

Moderator (bob): Seeing no questions from Team 6. We are going to open things up for Team #1.

magda v wi to Patrick Hamlett, bob, Tina Ndoh: no questions

Dana A WI: This is a question about decision making power regarding NBIC research, development, and introduction to the public...and my question is: Are decisions about where to go/how to get there in NBIC somehow protected from the politics of the current resident(s) of 1600 Pennsylvania Avenue...? Are there any assurances that science is leading the way, not politics? Or at least, not those politics...?

Terry R AZ: terry R AZ A ham radio operator has been doing some research with gold nano tubes for cancer control using RF energy at 13.56 MHZ is this included in your area of research

Kristen Kulinowski: regarding the investment question, i didn't mean to be flip but nano is being considered as potentially transofmrng every aspect of commerce so there isn't one area per se that is of interest

Kristen Kulinowski: terry some of that work is being done at Rice U. Very exciting to use carbon nanotubes to kill cancer with radio waves. (I think that's what you were saying)

Terry R AZ: Terry r Az Thanks

Kristen Kulinowski: Dana The current administration is very enthusiastic about nano but I doubt Pres Bush would be a big fan of certain aspects of NBIC for moral reasons

Stuart S AZ: I have been wondering if nanotech techniques could be used to remove nano particle contamination from tissues and from the environment, to sequester toxic elements and break down toxic compounds possibly using the materials to make useful products.

Kristen Kulinowski: nano is being used to clean up contaminated groundwater, being explored to remove arsenic from drinking water. These are two examples of nano being used to solve existing problems.

Terry R AZ: terry r AZ gold doping of carbon nano tube seems to be a major technology, are there many others and if so can you give any details

Foster F GA to Patrick Hamlett, bob, Tina Ndoh: sorry bob; clean up groundwater; think of the possibilities

Moderator (Patrick Hamlett): Dr. Mehlman is unable to reconnect tonight (we think it may be a problem with the NC State server), but he will join us on Tuesday evening.

Kristen Kulinowski: putting radioactive atoms inside carbon nanotubes and then sending them to kill cancer cells, putting heavy metal atoms inside nanotubes and using them to image tissue better

Foster F GA to Patrick Hamlett, bob, Tina Ndoh: so try CLEMSON'S

kokila r GA: Dr. Kulinowski, are you confident that current regulations pay attention to all possible ways nano materials would impact the environment before testing them on humans, animals, and the environment?

Dana A WI: Somewhere in the readings for this group, there was discussion of putting something of a nano nature into a person, and that something would form a scaffolding onto which the person's body would create a new kidney. How far might we be from something like that...?

Kristen Kulinowski: I'm confident the right questions are being asked by the right people.

John E WI: Dr. K: Are you aware of any predictive models being used to assess both the potential hazards and benefits of nano tech? Much work has (& is) been done with viruses, for example--and also elemental metals such as mercury. Can some of our past knowledge be used to facilitate the assessment of future outcomes of using nanoparticles?

Kristen Kulinowski: nano is being explored as a material to strengthen bone, nit sure about the new kidney...

Eric B CO: The right q's are being asked by the right people but it seems that little or no actual regulation currently exists.

Madhavi D WI: Dr.K, Do you think that a sample statistical study such as this right now would accurately reflect what a majority of consumers want in terms of human enhancements or remediation?

Kristen Kulinowski: Predictive models are a subject of great personal interest. I think that's the only way we're going to tackle the diversity of nanomaterials out there and to come in the future, But I think we should be cautious about taking wholesale from past models because nano might be different

Kristen Kulinowski: Eric the agencies feel that their existing authority covers nano already. Many disagree., there was whole conference recently devoted entirely to nano and regulation in which fed gov officials participated so it's not like they don't know what the issues are

Eric B CO: Dr: might nano be different or is it safe to say that it is different and produces very new physical and chemical reactions at the sub-cell level

Eric B CO: or likely will?

Brett K CO: Dr. K, going off your point, because nano particles are so different, has the research involving them had to be modified to facilitate them?

Kristen Kulinowski: Madhavi, I don't know do you want to take a poll? There have been some public perception studies done (moderators would know much about this than I) but I'm not sure to what extent they covered NBIC/enhancement

alex r CO: With nano emerging will there be new forms of pollution..or is that even known?

charles az to Patrick Hamlett, bob, Tina Ndoh: what about tracking chips

Terry R AZ: terry R AZ will nano implanting have a high level of permanence, or will a booster Shot be need at some time)

kokila r GA: Just wondering...are nano materials more expensive than the current technology - is it cheaper to move on to nano eventually - because of cost concerns?

Kristen Kulinowski: Nanoparticles should not be expected to behave the same way larger particles behave or the way molecular compounds behave. They won't all be different but we shouldn't assume ahead of time. A man from the Nano Characterization Lab was quoted recently as saying that on a daily basis nanoparticles confound the standard tests they are used to using. We may need new tools to evaluate risk for nano

John E WI: Just wondering... does the FDA do any of its own testing, or do they rely solely on clinical trials and manufacturer's records?

Dana A WI: Dr K: Can you tell us what the International Council on Nanotechnology does? Does it have any regulatory power? The need for international cooperation/regulation has come up in these groups before.

Kristen Kulinowski: Brett yes see previous answer, we may need new tests, tools etc to understand and ultimately predict impacts on human health and environment

Brett K CO: Dr. K, thank you, are there any such tests/tools being worked on?

Eric B CO: thank you. It seems a good policy would be "no new nano until you prove that it IS harmless...not let's use nano at some levels until results are known..."

Kristen Kulinowski: New forms of pollution? Hmm depends on what you mean by "forms" Nano might behave in the environment in ways we can;t predict from history with toxic chemicals or particulate matter.

Kristen Kulinowski: terry not sure what kind of implanting you refer to

Kristen Kulinowski: John, that a question for Dr Mehlman.

John E WI: oh... sorry

Moderator (bob): To be fair to Dr. Kulinowski, we'' wrap up with her around the bottom of the hour.

Terry R AZ: any use of nano particle that are introduced into the human body

Kristen Kulinowski: ICON works to reduce the uncertainties by, e.g. collecting information on what is known about hazard and risk, what industry is doing to protect workers, what research is needed to develop predictive models. We do not do advocacy, have no authority other than the power of industry, government, advocacy groups and academics working together with a common purpose. Checkout our website, it's everything you ever wanted to know about environment health and safety of nano

Dana A WI: Thanks!

Kristen Kulinowski: Brett, people are working to validate the standard tests and where they don't work develop new tests. THIS was only recently discovered so it will take some time to work out

Brett K CO: Interesting, thank you

Moderator (bob): OK guys - no new questions while Dr. Kulinowski answers those already asked.

Don B NH: any work on nanotech to sequester CO2 from atmosphere as a remedy to global warming

Terry R AZ: thanks

Moderator (Patrick Hamlett): I sure hope we used up our full quota of glitches tonight!

Kristen Kulinowski: Eric what you express is known in my circles as the Precautionary Principle. Our federal system of regulation is not set up according to that principle, though many in the US and Europe (and elsewhere) believe that is a good principle. our system is more reactionary and requires data to show evidence of harm before preventing a product from going to market

Moderator (bob): OK - let's call a halt here because Dr. Kulinowski's fingers are going to fall off.

John E WI: thank you, Dr. Kulinowski

Foster F GA to Patrick Hamlett, bob, Tina Ndoh: yeah but she is good

Moderator (bob): Dr. Mehlman will be back with us on Tuesdat to finish up.

Kristen Kulinowski: Whew, thanks for this, it was fun

kokila r GA: Thanks, Dr. K!

Brett K CO: Thank you for your time, Dr Kulinowski

alex r CO: is there enough data to see any undesirable effecdts for the environment..

Madhavi D WI: Thanks Dr.K

Dana A WI: so are we done for tonight? Thanks, Dr K.

Terry R AZ: like the LEGAL system inocent until proven guilty

Foster F GA to Patrick Hamlett, bob, Tina Ndoh: Thanks Dr K

Moderator (bob): Remember - No session on Tuesday.

alex r CO: thank you Dr. K!

Foster F GA to Patrick Hamlett, bob, Tina Ndoh: none on Tues

Abraham E CO to Patrick Hamlett, bob, Tina Ndoh: you mean sunday

Kristen Kulinowski: good questions everyone

Eric B CO: that's no good for food and medicine!!

Catherine J NH to Patrick Hamlett, bob, Tina Ndoh: Don't you mean Sunday??

Brett K CO to Patrick Hamlett, bob, Tina Ndoh: tues or thur?

Virginia P WI to Patrick Hamlett, bob, Tina Ndoh: on Tuesday or Sunday?

Moderator (Tina Ndoh): Wait hold on that was a type

Moderator (bob): SORRY - No Session on SUNDAY. We're back Tuesday.

Jennifer C GA to Patrick Hamlett, bob, Tina Ndoh: Thanks for that clarification. Happy Easter everyone.

Foster F GA to Patrick Hamlett, bob, Tina Ndoh: bob have a beer

Abraham E CO to Patrick Hamlett, bob, Tina Ndoh: Who talks on tues?
2/3 and then 4/5?

Dana A WI: ok, goodnight, all.

Moderator (bob): The valid info is on the slide, but Dr. Mehlman
will also be back.

magda v wi to Patrick Hamlett, bob, Tina Ndoh: I saw no session
Thurs in info

Virginia P WI to Patrick Hamlett, bob, Tina Ndoh: early night!

Catherine J NH to Patrick Hamlett, bob, Tina Ndoh: Which teams will
be chatting?

Madhavi D WI: ok, can we log out now

Moderator (Tina Ndoh): On Tuesday we'll here from groups 2 and 3
first hours, and 4 and 5 second hour

Jonathan R GA: Darn it ... I stopped to get something to eat, and
missed most of the action. I will have to read the transcript.

Andrea C WI to Patrick Hamlett, bob, Tina Ndoh: Mods: You may wish
to update the "Calendar." Its color-coding suggests that there are on-
line sessions on Sunday and next Thurs. Some people may not check this
chat or "Announcements."

Moderator (bob): Thank you all for participating. Good Night!

Foster F GA to Patrick Hamlett, bob, Tina Ndoh: happy holiday to
all; see you on TUES

Trisha B AZ to Patrick Hamlett, bob, Tina Ndoh: good night