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Welcome and thank you for standing by. All participants will have an open line during today's conference call. If you're not speaking, we would ask that you please utilize your Mute button or press "star 6" to mute and unmute your line. Today's conference is being recorded. If you have any objections, you may disconnect at this time.

I would now like to turn the call over to your host for today, Dr. William Zamer.

Sir, you may begin.

Thanks, Christine.

Welcome all to the IOS webinar that's focused on the revisions to the Core Programs solicitation. I'm Bill Zamer; I'm sitting in a conference room at NSF with a bunch of my colleagues. And we're here to eventually take your questions and try and answer those questions near the end of the webinar. We're going to do introductions a couple of slides into this presentation, so stand by for that.

This is a summary of the significant programmatic changes in the new revised Core Programs solicitation for IOS; that's 16-505. These changes include significant changes to the Symbiosis Defense and Self-recognition program, which involve those proposals and projects that were formerly submitted to that program in the area of plant symbioses of all types; and we'll talk a bit about that. Those projects will be submitted to a new joint solicitation from the NSF IOS and the USDA's National Institute of Food and Agriculture; and we'll talk about that new upcoming program.

The significant changes also include the calling out of two proposal submission tracks within the Core Programs solicitation. It's a Core track and an EDGE track. In general, there are no changes for the Core track submission process. There is new guidance for the new EDGE track for submission of proposals.

At the very end of this slide presentation, we'll have a question and answer period in which you'll be able to use the Q&A window in WebEx to send in your questions. We'll read those questions aloud here in the conference room so everybody can hear, and then we'll field the questions for you.

This is a list of solicitations that are not affected by the changes in the IOS core programs. There are other solicitations. This is a set of highlight solicitations that are not affected. It includes the PGRP, the Plant Genome Research Program, set of solicitations; RCN solicitations not affected. Any of the doctoral dissertation improvement grants, solicitations or areas is unaffected by this. And in particular, the DEB Core Programs solicitation is significantly different from the IOS Core Programs solicitation.

If you're one of those PIs who is able to submit to either DEB or for IOS, depending on your research questions, you should note that those two solicitations are different from one another.

Here is a list of the IOS core programs arranged by cluster. And I've noted here that in the PSS cluster near the bottom, there are significant changes to the program description for the Symbiosis, Defense and Self-Recognition program. And we'll talk a bit more about that.

So I'm sitting in a conference room at NSF with colleagues who are here to be able to field questions. And it's at this point that I'm going to do an around the table. We're going to introduce ourselves and let you know who is here with me.

This is Rob Miller. I'm the current Acting Division Director for IOS.

I'm Irv Forseth. I'm the Program Director in the Physiological and Structural Systems Cluster.

I'm Michael Mishkind with SDS and soon to be with PBI.

I'm Ann Lichens Park. I work for the U.S. Department of Agriculture's National Institute of Food and Agriculture. And I will be working with Michael Mishkind on the Symbiotic Interactions program.

Hi, I'm Steve Klein, the Leader of the Developmental Systems Cluster. And you can see on the screen the areas that the Cluster supports.

I'm (inaudible) Shields, one of the Program Officers from the Neural Systems Cluster.

I'm Jodie Jawor. I'm the Program Director in the Behavioral Systems Cluster.

I'm Evan Balaban. I'm a Program Director in the Neural Systems Cluster.

I'm Scott Santos. I am a Program Director in Physiological and Structural Systems Cluster.

Hi, I'm Anthea Letsou. I'm the IOS Science Advisor.

Hello, I'm Tamika Queen and I'm a Science Assistant to IOS.

Hi, I'm Anastasia Solis. I'm a Science Assistant.

I'm Dinesh Lal; I'm also a Science Assistant.

Good morning, I'm Daniel Gerszewski, Program Specialist with the Developmental Systems Cluster.

Good morning, I'm Clay Cook. I'm with the animal portion of the SDS Program.

Hi, I'm Kim Hammond. I'm with the Physiological Structures and Infection Systems.

Hi, Michelle Elekonich. I'm the Lead for Animal Behavior and the Lead for the NSF/BSF activities.

Sridhar Raghavachari, Program Director at the Neural Systems Cluster.

Good morning, I'm Shantae Caudle. I'm Program Specialist in the Behavioral Systems Cluster.

Thanks all.

So let's talk about the Core track submission and review process. This particular submission track is essentially unchanged from the review process in previous IOS solicitations. It involves submission of pre-proposals. They undergo merit review. They receive three panel reviews; and the PIs receive those reviews after the fact, as well as a panel summary.

There are invited full proposals as part of the Core track submission, and these invitations are in part based on the results of the merit review of the pre-proposals. This is the track that's involved in supporting basic research questions. It includes collaborative and RUI applications.

We still encourage young investigators to use this particular track as a way to vet career research plans. Again, you'll receive three reviews from the panel and a panel summary in terms of feedback.

These are the important dates to keep in mind for the Core track submission and review. The quick proposal submission deadline is January 15, 2016. And the invited proposal submission deadline is August 5, 2016.

Let's talk about significant changes to the Symbiosis Defense and Self-Recognition program. Proposals focused on plant symbioses of all types that were formerly submitted to SDS should now be submitted to a new program under development called Plant-Biotic Interactions. The plant microbe symbiosis proposals and other symbiosis proposals with plants as the host, such as and including plant defense and signaling, those proposals are included in this change.

The Plant-Biotic Interactions program is going to be jointly administered by IOS and NIFA. And it will cover the same breadth or areas that were previously covered by the plant side of the SDS program. The expected full proposal submission deadline is in April of 2016, and proposals should be submitted to the National Science Foundation by either FastLane or Grants.gov. Pre-proposals are not required for this program. And the PBI's program focus on the fundamental processes supported by the SDS program remains undiminished with respect to the new PBI.

We expect to have a release of more information and more specifics about the Plant-Biotic Interactions program sometime later in 2015.

The proposals on plant symbioses will no longer, then, be accepted for review in the SDS program of the Physiological and Structural Systems Cluster through the IOS Core Programs solicitation. On the other hand, there will be no change in the review of proposals on animal symbioses of all types, organelle acquisition, or symbioses among and between prokaryotes and protists. PIs focused on these projects should continue to submit these proposals to the SDS programs through the IOS Core Programs solicitation. And the SDS Program description has been changed on the PSS Cluster webpage accordingly to reflect these changes.

So why did we do this? We think that PIs will be able to include some combination, at their own choosing, of basic research aims, applied research aims, and translational research aims in proposals submitted to PBI and in any combination of those. They could still submit proposals that have exclusively basic research aims or exclusively applied or translational aims or any combination of those types of aims.

We think that this kind of joint review process is going to add some value to be able to have synergistic advances in both the basic research and the agricultural translational research that is being administered in this area by the new PBI solicitation.

Let's move on to the EDGE track, which is brand new for the IOS Core Programs solicitation. EDGE stands for Enabling Discovery through Genomic Tools. The general purpose of the EDGE track is to advance our understanding of the relationship between genomes and phenomes, a grand challenge in biology. The basis for this track is that we recognize that a lack of functional genomic tools, approaches, and associated infrastructure in emerging model organisms is a significant impediment to progress in a wide array of basic research fields focused on the structure and function of organisms.

Again, the emphasis here is on genome manipulation to be able to test function of genomes with respect to phenotypes.

Examples of EDGE track ideas: innovative approaches for establishing gene function; development and testing of transformation approaches; expansion of the use of gene editing, knock-out and overexpression approaches in diverse organizations; and development of approaches and the establishment of conditions for maintaining organisms to test and manipulate genetic function.

Now, this is not at all meant to be an exhaustive list. It's not all-inclusive. If you have an idea that you believe is relevant, but you're not sure is relevant, to the EDGE track, I strongly encourage you to contact a program director in IOS or to contact me or to contact Rob Miller or to contact Anthea Letsou, who is the Science Advisor for IOS. Explore that idea with somebody one-on-one essentially, so that you can nail down whether it is or is not relevant to the EDGE track. We encourage you to do this.

It's also important to note that proposals that are relevant to plant symbioses, and focused on development of functional genomic tools to enable genome manipulation, may be submitted to the EDGE track of the revised IOS Core Programs solicitation. We have no intention of excluding these sorts of proposals on plant symbioses from the EDGE track in the new solicitation.

EDGE track proposals start with a Letter of Intent. It's required; and the submission deadline for the Letter of Intent is April 29, 2016. The proposal submission deadline for EDGE proposals is June 1, 2016. Pre-

proposals are not required for EDGE track submissions; but again, the LOI, Letter of Intent, is required. There are no PI and co-PI annual submission limits for the EDGE track.

And EDGE track proposals do not count against the Core track submission limits for PIs and co-PIs either. If you want to have a multi-institutional collaborative proposal, those should be submitted as one proposal by the lead organization and should include sub-awards for the non-lead organization; that is, no separately submitted proposals from multiple institutions for collaborative proposals to the EDGE track.

Again, the Letter of Intent is due on April 29, 2016. Letters of Intent are intended for internal use for planning purposes for the review of the eventual EDGE full proposals. They are not externally evaluated, nor are they used at all to determine funding with respect to EDGE proposals.

It's also important to note that Letters of Intent are non-binding on the PIs and the institutions; that is, although they are required for you to be able to submit a full EDGE proposal, you do not have to submit a full EDGE proposal if you submit an LOI. That is, you're not bound to submit an EDGE proposal after you submit an LOI if you decide for whatever reason that your plan is not fully developed at some point.

For the content of the Letter of Intent, it has to include a list of up to five senior personnel, including the PI; a list of up to five participating organizations, either confirmed or planned at the time of submission, including the lead organization; a synopsis of up to 2,500 characters, in which you should identify the organism or organisms to be used or enabled by the tool development and the general approaches to development of the tools to enable those organisms.

You should also include in the Letter of Intent a description of the impacted communities, up to 2,500 characters. You should describe one or more research communities that will benefit from the development of the tools and infrastructure, and identify bottlenecks in using functional genomics to test cause and effect between genes and phenotypes in those organisms. And the latter piece – that is, the description of the impacted communities – is the key component. Make a case for broad impact by the tools that you plan to develop on a large community or as large a community as you see being impacted by that tool.

Submission deadline for EDGE track proposals is June 1, 2016, once again. The title should begin with the prefix, "IOS EDGE:" The Project Description should not exceed 15 pages. There are some elements in that Project Description that are shown here, and I'll describe those in more detail in just a few minutes. And the Project Management Plan, not to exceed three pages, should be included as a Supplementary Document only for those projects that involve one or more organizations as sub-awardees of the lead organization; that is, for collaborative proposals submitted by the lead organization.

Let's look at the content of the Project Description. It needs to include a section about challenges to enabling emerging model organisms and community impact. That section should include, but it's not limited to, the following: justification of the selection of the organism or organisms that will be used; identification of the bottlenecks to functional genomics questions linking cause and effect between gene and phenotype in these organisms; identification of one or more research communities and/or research areas that will benefit from the proposed project.

And, again on this point, IOS wants to achieve a significant impact through the EDGE awards. So you need to develop your case for broad enough impact here with your project.

You need to include a description of any impediments the communities may face in employing the proposed tools, and discussion of the proposed research in the contest of existing technologies. For example, are you intending to use existing technology applied to a new set of organisms, or are you planning to develop novel technologies?

The Project Description should include an experimental approach. And these are the elements of the project descriptions that I think most PIs are typically familiar with in terms of the content of project descriptions.

And there needs to be a Dissemination and Education Plan. This section must be included within the required sub-section of the project description that's entitled "Broader Impacts of the Proposed Work." And it should describe, but is not limited to, the following: how enabling tools will be rapidly disseminated; how training will be provided, if necessary, to maximize the impact on the research communities; how outreach to the community will be achieved; how many researchers will be trained; how reagents and other resources will be maintained and disseminated.

And again, this is an important element because we hope to have a very significant impact with the EDGE awards in terms of increasing community capacity to use the tools and test cause-and-effect hypotheses.

There needs to be a Dissemination and Education Plan as well. I should say the other aspects of the Dissemination and Education Plan should include other broader impacts; that is, we encourage you all to consider other broader impacts of the EDGE track submissions. It's not just about the Dissemination and Education Plan, which is required; but you should develop further broader impacts within the project descriptions of these proposals.

So why did we develop an EDGE track for submission? We generally saw throughout the programs that IOS supports a lack of functional genomic tools to test cause-and-effect relationships between genes and phenotypes as an impediment to research progress. Frequently, PIs using non-model systems end up with correlations of genes identified potentially as having an effect on a phenotype, but without a way to actually test that cause-and-effect hypothesis.

It affects all the areas of research supported by IOS. We also recognize that existing genome-enabled models are frequently unsuitable to address basic research questions in organismal science that IOS supports. We also believe that the PI community and the science itself will benefit from increased capacity to use the tools and through the neutral development.

A couple of other points here before we move into the Question and Answer portion of the webinar. We'll remind you all that the Grant Proposal Guide provides general guidelines for proposal submission to the National Science Foundation. If a guideline is not specified within the IOS Core Programs solicitation, please follow the guidance in the NSF Grant Proposal Guide to use that in developing your proposals.

And finally, all proposals submitted to the Biological Sciences Directorate have to have a BIO Proposal Classification form filled out. Keep in mind that we view you as experts in your own research, and the form helps us manage the conceptual areas that IOS supports, as well as the review of your proposal. So please take some time as you submit your proposal and fill out the BIO Proposal Classification Form. We'd appreciate that.

Okay, we're about to go into the Question and Answer period. The webinar will be posted, as presented, for On Demand viewing at a later time. We will post that on the IOS Blog, nsfiosInFocus. There is a hot link here. There is a link to the solicitation in a number of places on the IOS webpages. And we have a list of Frequently Asked Questions associated with the new revisions to the IOS Core Programs solicitation, NSF 16-505.

Finally, you can e-mail questions to any IOS program director. We encourage you to do that as you're developing your proposals and as questions arise. Please contact the cognizant program director in your area. You can also direct concerns that you have to Dr. Rob Miller, who is the IOS Acting Division Director, or to Dr. Jim Olds, who is the Assistant Director for the Biological Sciences Directorate.

And with that, we'd be glad to try to answer the questions that you may have. Again, please use the Q&A function in WebEx. We'll read aloud your questions that are submitted, and we'll address those questions.

So let's open up the Question and Answer period at this point.

[Pause for questions]

So we have some questions coming in; we had a technical problem. We have some questions coming in by way of the Q&A, and we're going to start reading those questions.

The first one is from Susanne Brander, and it says: "What is an RUI application?"

RUI applications are research at undergraduate institutions, and these are basic research applications that include a number of additional documents at the full proposal stage; but they begin with a pre-proposal. These are proposals that are focused on research plans that typically involve undergraduates during the research as a way to engage undergraduate students as researchers directly in NSF-supported research.

And it's also a way to provide a mechanism for primarily undergraduate institutions' faculty to come into the review process in a way that provides them with an opportunity to give us some additional information in the proposal. So there is typically an RUI impact statement that goes into these full proposals, in which there is a description of how NSF funding will impact the institution and the research infrastructure and the ability of faculty at that institution to conduct research.

Again, they start out with a pre-proposal submission to the IOS Core Programs solicitation.

So in order to be eligible for the RUI proposal, you must be at an institution that is primarily undergraduate, which is defined as graduating fewer than a certain number of Ph.D.'s in a given year. I think it's something like 10 Ph.D.'s. Your school will know if you're eligible.

The next one is: "Is there a way to save this webinar as a PowerPoint file?"

We're going to post this slide set to the IOS Blog. And in all likelihood, that will be posted as a PDF file so that it cannot be altered from the slides that were presented. I assume that if you find it on the IOS Blog, you'll be able to actually save it as a PDF as you want; but I don't know that for sure.

The next is: "Can zebrafish and stickleback be considered as an emerging model system?"

I would have to say, no; I would not consider them to be emerging. I assume the question has to do whether developing tools for them will be eligible for the EDGE track. I hope I've interpreted your question correctly.

So the focus of EDGE is on emerging models, as stated; however, it's quite flexible. And if you could argue that zebrafish or stickleback need particular additional tools that would benefit the community, then we would be willing to listen to that argument. I hope that answers your question.

I think it also depends on which parts of the community you're taking about. Since those models are used in different parts of IOS, they're more developed in some rather than others. And so the piece for EDGE about what communities will be enabled will be particularly important for those models.

Just to sum up here, I think that you need to have a conversation with a program director who is administering the area that you're thinking about enabling with an EDGE proposal. To be able to have a conversation about the ideas you've got in mind and whether or not that idea would be competitive or not in an EDGE submission, given the intent to focus EDGE on non-model systems and the ability of communities to actually use the genomic tools.

The next question is: "I would just like to confirm that coral animal and dinoflagellate symbiosis proposals should still go directly to the SDS program."

That's confirmed, yes.

The next question is: "Regarding the new PBI program, does it expect the proposal to have both basic and translational research?"

No, that's not a requirement. What the PBI program does is open up the possibility to combine both; but our focus on pure basic research from the standpoints of NSF and applied agricultural research from NIFA remains as it always was. So you should not feel compelled to have both basic and translational components.

The next one is: "So the new PBI program does not require a proposal. When and how will the proposals be reviewed -- by its own panel?"

That's correct; no proposal is necessary. And there will be a joint panel convened by both NSF and USDA. And those panels will be run according to the rules that NSF has been running its panels.

After that is: "Will the review process for the new PBI be more like NSF or NIFA or something new?"

It's the NSF review procedures – the same precedents for joint programs between USDA and NSF in the past. And in this case, we will be using NSF review procedures.

"How do the changes to SDS affect career applications?"

They don't affect them at all. Career applications will be submitted according to the career solicitation. They will then be reviewed by the PBI Panel when it meets in the late summer or early fall following the submission.

"Will participation by NIFA mean that agriculturally-related projects will be favored in review? Will proposals with model organisms be viable?"

Absolutely they will be viable. They will continue to be at the center part of NSF's funding interests. All that this program does is open up the possibility to extend your basic research, if you're interested or if appropriate, into areas that could be considered translational. There's not a need to artificially submit two proposals, one for each side of your research interests.

So by working together, NIFA and NSF will be able to have a broad spectrum of proposal types that can be submitted to PBI, from proposals that are very basic, solely basis, to proposals that are solely translational or applied. NIFA's focus will be on the proposals that benefit U.S. agriculture and agricultural sustainability. And NSF focus will largely still be on basic, although this provides opportunities for the two agencies to work together on proposals that combine basic aspects and more applied aspects. It gives a little more flexibility, I think, to both agencies.

But from the applicant's standpoint, they can submit any type of proposal on that whole spectrum to the program and not have to worry about which agency is more likely to see the benefits of the project.

"Does PBI accept RUI proposals?"

Absolutely, yes -- our interest in funding undergraduate institutions continues in this program as strongly as it holds sway in the SDS program.

"How do the changes to SDS affect career applications?"

There's no affect at all. As we said just a little while ago, career proposals should be submitted according to the career solicitation, which has a deadline of July. And those career proposals will be reviewed by the PBI Panel, which meets at the end of the summer.

"What is the total amount of funding expected for EDGE, and how many awards will be granted?"

The Division has set aside $10 million for the support of EDGE proposals. Depending on the budget requests that we receive among the set of proposals that we're considering for awards, we might fund up to 10 EDGE proposals per year -- again, depending on the EDGE budgets that we receive. But the upper end, the maximum budget that we will entertain for EDGE proposals is $3 million for up to a three-year project; nothing more than three years in terms of a project timeline and nothing more than $3 million associated with that.

We expect that we will see submitted to the EDGE track a variety of kinds of projects of various sizes and durations, up to three years, and that we'll be making some awards that will not top out at $3 million over a three-year period.

The next question is: "Do RUI applications fall under Core or EDGE or both?"

It's both. RUI applications can be submitted to the Core track; they may also be submitted to the EDGE track. But you have to follow the guidelines associated with each of those tracks. So an RUI Core submission has to start with a preliminary proposal and be received by the preliminary proposal deadline. On the other hand, an RUI application to the EDGE track has to start with a Letter of Intent. And that Letter of Intent has to be received by the LOI deadline.

Next question is: "How will the PBI Panel be assembled? Are the reviewers going to be experts from the plant symbiosis field, or will it also colleagues from other related fields?"

The panel will be assembled by the same methods that we use to assemble both the SDS Panel and the Plant-Microbe Interactions Panel at NIFA. In other words, there will be specialists in all the kinds of interactions that we will be focusing on including plant pathogens, plant symbiosis. So there's no change there. So if you were in the group who have been solicited to be a panelist, you are still in that group.

I'll just echo that.

The next question is: "I am an early career investigator, and plan to submit my pre-proposal to the Core track. I hope to vet my application for later submission to career. I am intrigued by the EDGE track, as my research seems like a good fit. Can I submit it to both tracks?"

The answer is, yes. There are no PI or co-PI limits on an annual basis to EDGE track submissions. On the other hand, there are limits for Core track submissions. It's limited to up to two per year per PI or co-PI.

But you can't request funds for the same research project as both a career and a regular (inaudible).

You could submit two proposals, but they would have to be two different research projects.

"Would genome sequencing of a novel emerging organism be considered for EDGE? Would you define or give examples for genomic tools?"

We don't actually envision sequencing projects as part of EDGE. That being said, you might be able to call a program officer and discuss it.

And then you asked for examples of genomic tools for EDGE. I think Bill listed a number of those in the slide presentation. One can think of science as either driven by a question, a hypothesis, different question where you need new tools to answer that question. One can very generally think of tools that will enable a wide variety of organisms. And one, I think, could also think very broadly of organisms that are truly emerging; and you might want to focus on an organismal approach.

I'm hesitant to be more specific than that because I think we can't even just begin to imagine all the ideas that are out there.

At least in terms of design of EDGE, we thought that PIs could take either a taxonomic approach or an approach based on questions that are driving the research but lack genomic tools to address those questions or technology-based kinds of approaches that might have effects or benefits to a broad array of organisms.

So my advice is to read the solicitation carefully and think about which approach you'd like to take. And consider the impact on communities, the impact on the research, and see if you can develop a case for a relatively broad impact on both. But again, the focus is on being able to test cause-and-effect relationships between genes that may have been identified in terms of a transcriptomic approach that are related to certain phenotypic changes. That's one example. But you end up with correlations as a result of that transcriptomic approach; you don't have an ability to test candidate genes.

If you're only focused on a sequencing project, it really is up (inaudible) from where we believe EDGE is to be focused. That is, you're only identifying sequence at the genomic level. You're not really aiming to test hypothesis about cause and effect if you only get the sequence.

The next question is a question about NIFA impact. It refers to Core programs.

NIFA impact?

It says: "Q about NIFA impact refers to Core programs." There might be a typo in there somewhere.

I guess I'm not quite sure I understand the question. Maybe it refers to the broader impact criteria that are in the review process?

Jack, you might want to resubmit that question. But there is no direct on the NSF core programs of this collaboration with NIFA.

The next question is: "Will the PBI program be one or two times a year, and when will the PBI solicitation begin? Sorry, I came on five minutes late in case you covered this."

There will only be one round of review per year, the same as the IOS Core program. And we hope the solicitation will be out early in the new year.

"Is the EDGE track planned as a singular solicitation, or is it planned for 2017 forward as well?"

I think it's fair to say that EDGE is new enough that we're going to see what the response to EDGE is before we make a commitment beyond this first round of competition. The competition will take place in fiscal year 2017; that is, before the next October 1. On the other hand, the awards will be made out of the following fiscal year's budget; that is, after October 1, award decisions will go out for EDGE, if that helps.

I think that we're going to wait and see what the response to EDGE is. Also, all solicitations are dependent on program funds to be able to support awards out of those solicitations. We'll see what the budget shape is like before we make a decision to go beyond this first competition for EDGE.

The next question is: "What is the anticipated budget for PBI?"

The PBI's budget will incorporate the SDS plant budget and the NIFA plant microbe interaction budget; and we estimate that will come to about $16 million a year.

The next question is: "Will EDGE consider only molecular tools that facilitate direct genome-to-genome linkages? What about tools like vibrational spectroscopies that can help in between with interpretations of metabolomes or help with genotyping in the first place?"

I think that there are other grant proposal or solicitation opportunities for major instrumentation development that you might want to look into. And on that point, my advice is to look at the Division of

Biological Infrastructure's website to identify some of those programs. We will consider EDGE proposals that include development of instrumentation in them, but they cannot be standalone instrumentation development proposals. You've got to make the case that the instrumentation that you want to develop is tied to the development of tools to manipulate genomes that will allow you to test cause and effect between a gene or a set of genes and phenotypes.

So if you want to explore this in some more detail, again, I'd advise you to talk with a program director. We don't want to include instrumentation as part of EDGE proposals. But it's got to be not the standalone feature of the project plan for EDGE proposals. There are plenty of other instrumentation programs, standalone solicitations, that would address that need.

The next question is: "Can PBI proposals be more than three years?"

Just like all proposals in IOS, the three-year standard is more an emergent property than anything specified in our DNA. So it's perfectly appropriate to ask for as little as one or two years and go up to five years.

I think I might add that NIFA actually has the authority to support projects for more than five years; but for this type of program, that would be very unusual. So the longest duration for proposals that are submitted to our research-only programs like this, it's usually not more than four years because there is usually an opportunity for a no-cost extension to five.

The next question is: "Would questions revolving around epigenetics qualify for EDGE funding?"

Potentially yes – if you wish to build tools to manipulate the genome that's in some way tied to epigenetic questions, yes, in fact they would be eligible for EGDE.

"How will the EDGE proposals be reviewed – external, ad hoc, in panel? How do you plan to direct (inaudible) with regard to perceived risk of tool development?"

At a minimum, the EDGE proposals will be review by a set of panel reviewers. Depending on the demand, we may also have ad hoc – that is, external reviewers – assigned to each of the EDGE proposals. So at our option, we will have ad hoc reviewers. But at a minimum, there will be panel reviews. EDGE proposals will be reviewed in a completely separate panel. They will not be reviewed in association with the invited full proposals as part of the Core track in the IOS Core Programs solicitation.

So we're clearly separating out those proposals that are focused on tool development from those proposals that are more focused on basic research questions rather than tool development.

"Does PBI require pre-proposals?"

No, we will not be using the pre-proposal mechanism. The deadline, which will be in April, will be for full proposals.

"Regarding the EDGE program, are living resources, like inbred strains or transgenic strains, in methods enabling them to be easily maintained in other labs appropriate?"

Yes, depending – if the project is focused on making those inbred strains or organisms non-model systems much more accessible to a broader array of PIs by making them easier to maintain in a laboratory, then those are potentially appropriate for EDGE applications. And you should probably have a conversation with a program director about the specifics of what you had in mind and flesh it out with a program director. But in general, what you've just described are relevant to EDGE.

"Can a Core proposal request multiple pieces of equipment, each under $100,000? Is there an upper guideline to a total cost of equipment a project could request?"

There are no maximums associated with the budgets tied to full proposals in the Core track, unlike the EDGE proposals. And there likewise are no restrictions on the equipment requests going into those budgets associated with Core proposals. If you want to get some additional guidance about developing a budget associated with a Core proposal, I really suggest that you talk to a program director to find out what the norms are associated with awards in that program or proposals that are reviewed in that program.

I think that was the last question that we got.

There was one comment about risk that we didn't address in the EDGE program.

About how the risks of EDGE proposals will be judged, meaning how are we going to assess—

So I missed a piece of a question that was about how risks of tool development are going to be judged with respect to EDGE proposals.

In general, NSF program directors are willing to take risks as balanced against the potential rewards coming out of a project that overcomes those risks. So you've got to make the case that you've in some ways addressed the risks in the EDGE project plan as best you can. You've looked at pitfalls in the research plan and you've got ways around potential pitfalls in the research plan for developing the tools.

But on the other hand, you've also got to make the case that the potential for benefit or for progress of the science or benefit to a community is high enough that it's worth taking a risk on a project plan. So it's a balancing act. What are the risks? How have you tried to address those risks within the project plan? And what are the potential great benefits that would result from an EDGE award project if those risks are overcome and you win the bet that the risks are put aside basically?

I think around the table the definition of the word "risk" has been raised and another interpretation of risk. And I don't know if this is what the question was asking; correct me if I'm wrong. The risk, the danger—

Exactly, if you're proposing a manipulation that is potentially dangerous because you can't contain it properly, you're introducing a new tool and the effects may not be known, it begs the question of it could also have been about how will panels assess the riskiness in that sense of what's being proposed?

And I guess if I were to answer that question, I would say that type of risk is usually handled at the university level. And as for all of our proposals, we would require that appropriate certification be provided to ensure us that this has been thought about and handled correctly.

You've got a clarification saying: "No, I was more asking because (inaudible) if it doesn't seem like it would definitely work."

We would address that by pointing out that it's going to be in a separate panel convened just for reviewing these EDGE proposals.

And we recognize that they're risky.

She clarified again, saying: "Yes, we'll have to deal with any dual use or biohazardous risks through our university programs."

And those certifications need to be within the EDGE proposals that you submit.

If there are no other questions at this point – we see no others on the Q&A screen here – thanks to all of you for participating in this IOS webinar. And again, we will post the recording of the webinar, as well as the slides, on the IOS Blog; that's nsfiosInFocus. And you can hear the webinar at your own schedule on the blog site.

Thanks a lot, bye-bye.