GO Content Meeting
August 22, 2004
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Host-pathogen interaction issues:

One of the issues raised when PAMGO submitted their proposal was to obsolete terms such as 'defense response to pathogenic bacteria' GO: 0009618 etc. Argument was these defense terms are the same and we don't need a separate term for each pathogen ie, bacteria, fungus etc.

Counter argument:

But the defense response to various pathogens is not the same starting from basal defense response between bacteria and fungus for example. There could be some overlaps between these defense pathways down the road but they should be considered as separate pathways and hence the specific terms should remain in GO.

Responses to PAMGO's proposal:

#1:

Should the existing 'response to pathogenic …..' terms be children of the non-host and -host interaction terms? Interaction with host/nonhost is going to result in array of responses and thus it makes sense to include these terms in the tree to give a complete picture of interaction between organism and host/non-host.

response to pathogenic bacteria
A change in state or activity of the organism (in terms of movement, secretion, enzyme production, gene expression, etc.) as a result of the perception of a pathogenic (disease-causing) bacteria.

Perception will happen during interaction and thus interaction will lead to responses and signaling cascades.

* Terms that should go under interaction with non-host organism:

Some children of response to bacteria GO: 0009617, response to fungi GO:0009620 etc. such as the following should be accommodated in this tree.

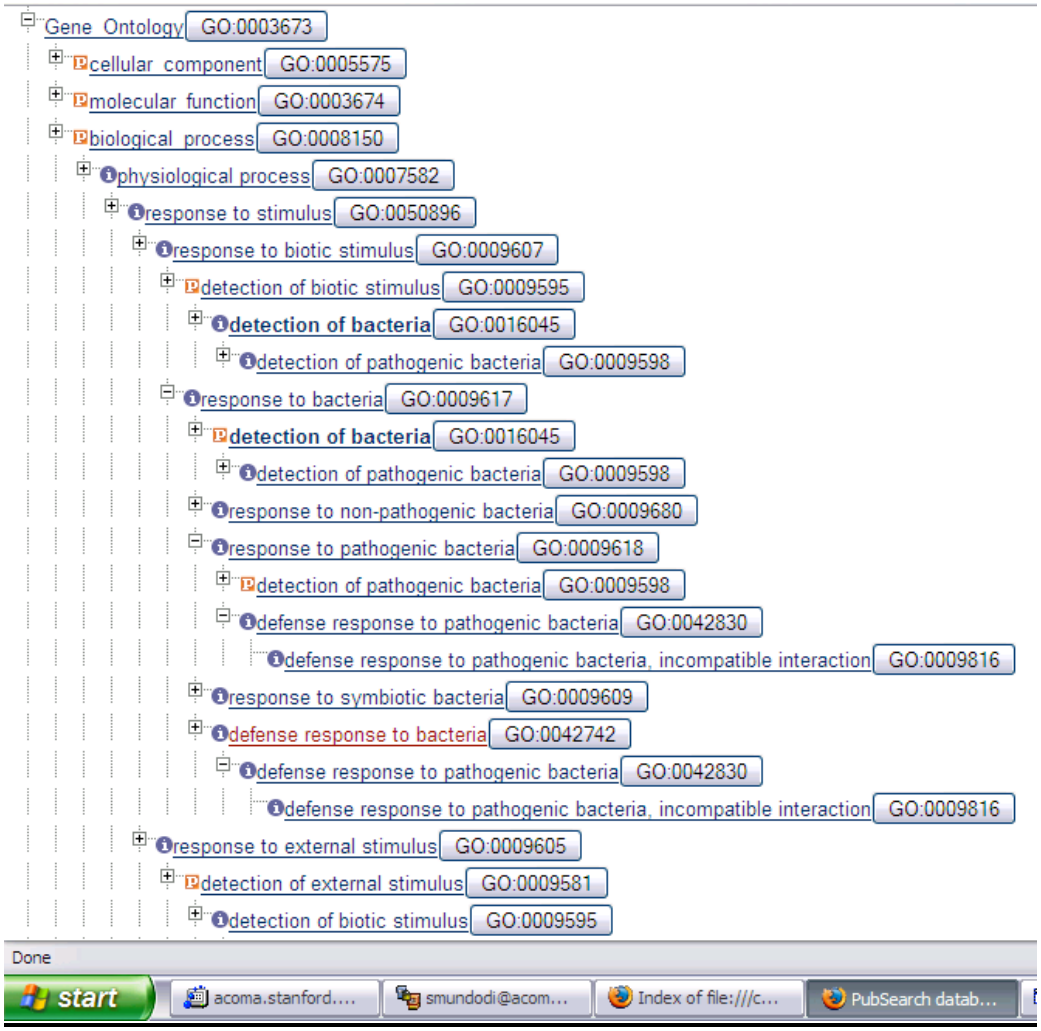
detection of bacteria GO: 0016045

defense response to bacteria GO:0042829

defense response to pathogenic bacteria GO:0042830

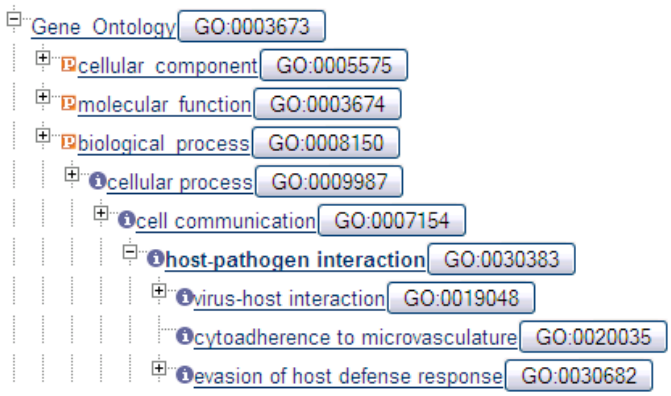
defense response to pathogenic bacteria, incompatible interaction GO: 0009816

Same for fungal pathogens..



#2:

Instead of obsoleting host-pathogen interaction, can we make that a child of interaction with host-organism? Then logically all the host-pathogen interaction children will fall under that.



#3:

Can 'induction of host defense' be a child of interaction with non-host organism -> doesn't this have to be an interaction of pathogen with non-host? True that it is possible to see host defense being induced in a narrow window during the compatible interaction between a host and a pathogen. However, not all interactions with host will result in induction of host-defense response. Also, induction of host defense is dependent both on factors in pathogen and host -> kind a gene-gene interaction. It is not a microbe specific term.

#4:

cell killing term. How is this different from cell death? Can we not use the existing term? Also, killing of host and killing of non-host cells can be both pathogen and host specific. Because, pathogen can result in cell killing/cell death due to the presence of toxic compounds and on the other hand, host cells can result in cell death due to host response resulting in hypersensitive cell death.
Need to distinguish the cell killing caused due to pathogen or host.

#5:

Interaction with other organism (and the other broad interaction terms): is this grouping term really necessary. Is there really going to be a gene that will be annotated to this broad term? Can we accommodate the children term in our existing structure? Eg: a child of cell communication.