

US Veterinary Immune Reagent Network: Prioritization & Progress

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Catfish:

Norman Miller, Eva Bengten, Gregory Chinchar, Melanie Wilson,
University of Mississippi Medical Center

Species Coordinators

Species Collaborator: Ronald Thune, Louisiana State University

Species Consultants: Harry Dickerson, University of Georgia; Larry Hanson, Mississippi State University; Zhanjiang (John) Liu, Auburn University; Thomas McConnell, East Carolina University; Charles Rice, Clemson University; Phillip Klesius, USDA-ARS (Alabama); Geoffrey Waldbeser, USDA-ARS (Mississippi); Gregory Warr, Medical University of South Carolina

Catfish Priority List

α TCRa	α CD35z
α TCRb	α DAP10/12
α TCRg	α FceRg
α IgD	α perforin
non-immune IFN	α granzymes
α LITRs	α NK lysins
α IFN-2/ rIFN-2	α chemokines
α TNF/ rTNF	α chemokine receptors
α MHC II	α iNOS
α MHC I	α CD4
α b2M	α CD8
α FasR	α IL-1
α FasL	α B7
α FcR	

Equine:

David Horohov, University of Kentucky, Lexington
Species Coordinator

Species Collaborators: Douglas Antczak, Cornell University; James Belknap, Ohio State University; Steve Hines, Washington State University; Jeff Davis, University of California, Davis; Samuel Black, University of Massachusetts, Amherst; Bettina Wagner, Cornell University
Species Consultants: Paul Lunn, Colorado State University; John Butler, University of Iowa; Marie Paul LeFranc, Institut Génétique Humaine, France

Equine Priority List

IL-1α	IL-13	TGFβ
IL-1β	IL-15	GM-CSF
IL-2	IL-17	CXCL9 (MIG)
IL-4	IL-18	CXCL10 (IP-10)
IL-5	IL-21	CXCL11 (I-TAC)
IL-6	IL-23	CCL2 (MCP1)
IL-7	IFN-γ	CCL3 (MIP-1α)
IL-8	IFN-α (family of 15)	CCL5 (RANTES)
IL-10	IFN-β	CCL11 (eotaxin)
IL-12 p35 & p40	TNF-α	VEGF-A or B

See poster this session for more information.

Poultry:

Hyun Lillehoj, USDA-ARS (Maryland)
Species Coordinator

Species Collaborators: Calvin Keeler, University of Delaware; Darrell Kocpczynski, USDA-ARS-SEPRL (Georgia); Uma Babu, USDA (Maryland); Thomas Scott, Clemson University; Chin Ching Wu, Purdue University; Tsang Long Lin, Purdue University

Species Consultants: Kirk Klasing, University of California, Davis; Narayan Rath, USDA-ARS (Arkansas); John Butler, University of Iowa; Marie Paul LeFranc, Institut Génétique Humaine, France

Poultry Priority List

a IL-6	r IL-15	a CXCR1
a IL-1	a IL-16	a CXCR4
a IL-8	r IL-16	a CD40L
a IL-2	a IL-17	a CD80
a IL-15	r IL-17	a TLR 1
r IL-1	a IL-18	a TLR 2
a TGF-b	r IL-18	a TLR 3
r TGF-b	a IL-6R (CD126)	a iNOS
a IL-8	a IL-15Ra	a IL-10
r IL-8	a IL-2Rg	

See poster this session for more information.

Immunological reagents including cytokines and chemokines and monoclonal and polyclonal antibodies (Ab) that identify the major leukocyte subsets (T and B lymphocytes, NK cells, macrophages, dendritic cells, neutrophils), that react with cytokines/chemokines and their receptors, and react with other important receptors that modulate immune function such as toll-like receptors are used to evaluate changes during disease, including the causes of immune-pathology. They also allow scientists to evaluate host responses to vaccination. Finally, they provide the means to manipulate or modulate immune responses either to enhance protective immune responses to vaccines or to reduce immune-system-mediated pathology. A broad community effort began in the US 18 months ago with the target species ruminants including cattle and sheep, swine, poultry including chickens and turkeys, horses, catfish, and trout. The project directors are coordinating their efforts with other international groups and are continually revising the prioritization list and seeking input from scientists working with these species. A list of currently targeted reagents and progress regarding these will be presented.

Protein Expression:

Joanna LaBresh, Kingfisher Biotech (soluble proteins)
Chemokines and cytokines expressed in yeast, tested for bioactivity and used for mAb production.

Bettina Wagner, Cornell University (cell surface molecules)
Cell surface molecules fused to IgG1 or IL-4 for expression, tested for bioactivity, and used for mAb production
(See Wagner poster this session for more detailed information.)

Monoclonal Antibody Production:

Samuel Black, University of Massachusetts, Amherst

- *Immunized with CFA or Gerbu adjuvant.
- *Boost with IFA or Gerbu adjuvant.
- *Adoptive transfer to naïve mouse with antigen.
- *Fused at 3 days with thymocyte feeders in methylcellulose

Ruminants:

Cynthia Baldwin, University of Massachusetts, Amherst
Species Coordinator

Species Collaborators: Wendy Brown, Washington State University; Doug Bannerman, USDA-ARS (Maryland); Samuel Black, University of Massachusetts, Amherst; William Golde, USDA-ARS (New York); Jeanne Burton, Michigan State University; Ray Waters, USDA-NADC (Ames, Iowa); Paul Coussens, Michigan State University; Dante Zarlenga, USDA-ARS (Maryland)

Species Consultants: Mark Jutila, Montana State University; Susan Eicher, USDA-ARS (Indiana); Mark Estes, University of Texas Medical Branch; Azad Kaushik, University of Guelph, Canada; Harry Dawson, USDA, Human Nutrition Research Center; Mulumebet Worku, North Carolina A & T State University; Doug Weiss, University of Minnesota; John Butler, University of Iowa; Marie Paul LeFranc, Institut Génétique Humaine, France

Bovine Priority List

α IL-2	α IL-1	r IL-8
α TCRβ	α IL-4R	R IL-1β
α TCRα	α IL-12R	R IL-6
α IL-10R	α IL-23	r TNF-α
α CCR7	α CD151	α CCR2
α IL-4	α DC-SIGN	α CXCR3
α IL-12	α TLR4	α CCR5
α IL-6	α IL-23R	α CCR6
α IL-8	r IL-23	α IL-1β
α IL-10	α CD151	α TNF-α

Swine:

Joan Lunney, USDA-ARS (Maryland)
Species Coordinator

Species Collaborators: Doug Bannerman, USDA-ARS (Maryland); Frederico Zuckermann, University of Illinois; William Golde, USDA-ARS (New York)
Species Consultants: Harry Dawson, USDA, Human Nutrition Research Center; Mulumebet Worku, North Carolina A & T State University; Dante Zarlenga, USDA-ARS (Maryland); Jay G. Cavert, Pfizer, Inc.; Dennis Foss, Pfizer, Inc.; Nicole Kirchof, University of Minnesota, St. Paul; Montserrat Torremorell, Sygen International; Martha Mellencamp, Sygen International; Lucina Galina-Pantoja, Sygen International; Eric Vaughn, Boehringer Ingelheim; John Butler, University of Iowa; Marie Paul LeFranc, Institut Génétique Humaine, France

Swine Priority List

α TCR α/b	r IFN-β / α IFN- β
r IL-7/ α IL-7	r IFN- α / α IFN- α
α CCL5	r IL-17/ α IL-17
/rCCL5	
α CD45RO	α IL7R α
α IL13Rα1	r CL3L1/ α CCL3L1
α IL4Rα	rCXCL11/ α CXCL11
r IL-13/ α IL-13	α CCR7
r IL-15/ α IL-15	rCXCL10/ α CXCL10
rCXCL9/ α CXCL9	r CCL2/ α CCL2
α CXCR3	α IGSF2

See poster this session for more information.

Trout:

John Hansen, Western Fisheries Research Center, USGS, Seattle
Species Coordinator

Species Collaborator: Steve Kaatari, Virginia Institute of Marine Science
Species Consultant: Oriol Sunyer, University of Pennsylvania

Trout Priority List

α-IgD	α-CD28
α-IgT	α-CD45R
α-CD3	α-CD79A/B
α-TCRβ	α-PMN marker
α- CXCR3	α-BLIMP
α- CXCR9	α-Ick
α-IFNα	α-Pax5
α-IFNγ	α-TLR2
α-IL-1β	α-TLR3
α-TNF-α	α-TLR4
α-CD4	α-TLR5
α-CD8	α-MHC class IA
α-CD28	α-MHC class IIA/B