

CRWAD 2021 Program:

Sunday, December 5	Presenter Abstract #	Chicago D (5th) Title	Presenter Abstract #	Chicago E (5th) Title	Presenter Abstract #	Chicago C (5th) Title	Presenter Abstract #	Chicago A/B (5th) Title	Presenter Abstract #	Chicago F/G (5th) Title	
Time	Session 1	Vaccine Network Featured Speakers	Session 2	Epidemiology -1	Session 3	Diagnostic Testing - 1	Session 4	Immunology -1	Session 5	Antimicrobial Resistance/Use - 1	
Sunday	8:30 am	Vaccine Network Featured Speaker	Horton	Description of feedlot animals culled for slaughter, revenue received, and associations with reported U.S. beef market prices	Yuan	Characterization of monoclonal antibodies against SARS-CoV-2 nucleocapsid protein: implication in diagnostic assays for animal surveillance	Maina	Immunization with a mucosal, postfusion F/G protein-based polyhydroxide nanovaccine protects against BRV infection in neonatal calves	Reif	Effect of antimicrobial-based anaplasmosis control on E. coli chlorotetracycline susceptibility from pastured cattle	
	8:45	Mark Fast	Jumper	Veterinary involvement in cattle health and production record-keeping on U.S. cow-calf operations	Hungerford	Rules for the pool: Optimizing testing for populations and individuals	Slate	Modulation of inflammatory IL-17A signaling affects Mannheimia haemolytica pathogenesis	Leon	Viable Bacteria from Cattle Feedyard Dust: Phenotypic and Genotypic Characterization	
	9:00	1	Maier	Effects of eye patches on corneal ulcer healing and weight gain in stocker steers on pasture	McCormick	Development of a PCR assay to quantify Fusobacterium necrophorum subsp. necrophorum and funduliforme in rumen fluid	Casaro	The use of blood myeloid and lymphoid cell profiles to predict metritis in dairy cows	Nickodem	Evaluation of Salmonella serovar dynamics in beef cattle and the feedlot environment using whole genome sequencing	
	9:15	Vaccine Network Featured Speaker	Gonzales	Production indicators for reporting suspicions of highly pathogenic avian influenza virus outbreaks in farmed ducks	Crosby	Comparison of sampling and diagnostic techniques for recovery of Mannheimia haemolytica from feedlot cattle	Kandel	Regulation of bovine Th2 differentiation in vitro	Srednik	Characterization of Salmonella enterica serotype Infantis from animals in the United States	
	9:30	Amy Vincent	Rim	Prevalence of severe fever with thrombocytopenia syndrome virus among wild animals in the Republic of Korea	Zeinelidin	Whole Genome Sequencing and Genotyping of Mycobacterium bovis Directly from Clinical Tissue Samples in Research and Diagnostics	Abou-Rjeileh	Oleic acid improves insulin sensitivity in dairy cow adipose tissue through PPARα and PLIN5	Awsolle	Resistance to extended spectrum cephalosporins in enteric bacteria from selected national surveillance program	
	9:45	2	Jung	Serological survey of Influenza A Viruses in wild boar of the Korean peninsula	Thompson	Sources of variation in a commercial bovine immunoglobulin G radial immunodiffusion assay			Sher	Conjugative plasmid-mediated transfer of antibiotic resistance genes to commensal and multi-drug resistant bacteria	
	10:00 - 10:30	Break		Break		Break		Break		Break	
	Time:	Session 6	Vaccine Network Featured Speakers	Session 7	Pathogen-Host Interaction - 1	Session 8	Virology - 1	Session 9	"Omics"	Session 10	Antimicrobial Alternatives
	Sunday	10:30 am	Vaccine Network Featured Speaker	Sarlo Davila	Host response in the porcine mediastinal lymph node to infection by PRRSV 2, Influenza B and their coinfection	Vega Rodriguez	The role of the conserved alpha herpesvirus glycoprotein C in host-to-host transmission	Ceres	A critical evaluation of Mycobacterium bovis pangenomics, with reference to its utility in outbreak investigation	Lyles	Effect of chicken IgY on Staphylococcus aureus growth in vitro
		10:45	Lisa Becton	Crawford	Impact of porcine sapovirus on weaning weights in a herd with ongoing piglet diarrhea	Krieter	Marek's disease alphaherpesvirus UL13, virion protein US10, and cellular LY6E in horizontal transmission	Cunha	Assessment of presence of a uterine microbiome at birth and at 60 days of life in cattle	Loving	Alternatives to Antibiotics: neonatal immunomodulation to improve disease resistance in animals
11:00		3	Vu	A single amino acid mutation in porcine reproductive and respiratory syndrome virus glycoprotein 2 significantly impairs its infectivity in macrophages	Tien	Temperature-induced reactivation of Marek's disease alphaherpesvirus transformed CD4+ T cells	Gaire	Halostein cow genotype affects mammary skin microbiome during experimentally induced E. coli mastitis	Zhang	Synergistic enhancement of disease resistance of chickens by butyrate, forskolin, and lactose	
11:15		Vaccine Network Featured Speaker	Frias-De-Diego	Mitochondrial function of porcine primary lung cells upon infection with respiratory viruses	Gaudreault	Experimental SARS-CoV-2 transmission and re-infection in cats	Pang	The effect of fecal microbiota transplantation on Campylobacter jejuni colonization in young broiler chicks using a seeder-bird infection model	Zuckermann	Bacillus fed microbial reduces the pathogenic synergy of a co-infection with Salmonella enterica serovar Choleraesuis and PRRS virus	
11:30		David Swayne	Mansfield	Replacing a risk microbiome by protective fecal microbiota transplant (FMT) decreased allergic airway disease	Su	NF-κB activation and proinflammatory cytokine productions by ORF7a protein of SARS-CoV-2	Rajeev	Detection of polyadenylated mRNA in Leptospira transcriptome using Nanopore based RNA sequencing	Rajashekara	Novel Therapeutic Leads; Demonstration of efficacy, safety, and applicability of anti-APEC molecules in chickens	
11:45		4	Zhao	Intramammary lipopolysaccharide infusion alters the fatty acid profile in blood, but not in milk, in dairy cows			Stanton	MiniON-based sequencing rapidly identifies several putative new avian paramyxovirus species	Chowdhury	Trans-cinnamaldehyde as an antimicrobial feed additive to control and prevent enteric septicemia of catfish	
Lunch - 12:00 to 2:00	Break		Break		Break		Break		Break		
Time:	Session 11	CRWAD Council Keynotes and Special Symposium	Session 11	CRWAD Council Keynotes and Special Symposium	Session 11	CRWAD Council Keynotes and Special Symposium	Session 11	CRWAD Council Keynotes and Special Symposium	Session 11	CRWAD Council Keynotes and Special Symposium	
Sunday	2:00 PM	CRWAD Keynote	CRWAD Featured Presentations Chicago Ballroom D		CRWAD Featured Presentations Chicago Ballroom D		CRWAD Featured Presentations Chicago Ballroom D		CRWAD Featured Presentations Chicago Ballroom D		
	2:15	Jeffery I. Gordon	CRWAD Featured Presentations Chicago Ballroom D		CRWAD Featured Presentations Chicago Ballroom D		CRWAD Featured Presentations Chicago Ballroom D		CRWAD Featured Presentations Chicago Ballroom D		
	2:30	53	CRWAD Featured Presentations Chicago Ballroom D		CRWAD Featured Presentations Chicago Ballroom D		CRWAD Featured Presentations Chicago Ballroom D		CRWAD Featured Presentations Chicago Ballroom D		
	2:45	CRWAD Special Symposium	CRWAD Featured Presentations Chicago Ballroom D		CRWAD Featured Presentations Chicago Ballroom D		CRWAD Featured Presentations Chicago Ballroom D		CRWAD Featured Presentations Chicago Ballroom D		
	3:00	Kathe Bjork and Steven Thomson	CRWAD Featured Presentations Chicago Ballroom D		CRWAD Featured Presentations Chicago Ballroom D		CRWAD Featured Presentations Chicago Ballroom D		CRWAD Featured Presentations Chicago Ballroom D		
3:15	54	CRWAD Featured Presentations Chicago Ballroom D		CRWAD Featured Presentations Chicago Ballroom D		CRWAD Featured Presentations Chicago Ballroom D		CRWAD Featured Presentations Chicago Ballroom D			
3:30	USDA-NIFA programs in precision livestock farming and future outlook	CRWAD Featured Presentations Chicago Ballroom D		CRWAD Featured Presentations Chicago Ballroom D		CRWAD Featured Presentations Chicago Ballroom D		CRWAD Featured Presentations Chicago Ballroom D			
3:45 to 4:15	Break		Break		Break		Break		Break		
Time:	Session 12	CRWAD Special Symposium	Session 12	CRWAD Special Symposium	Session 12	CRWAD Special Symposium	Session 12	CRWAD Special Symposium	Session 12	CRWAD Special Symposium	
Sunday	4:15 PM	CRWAD Special Symposium	CRWAD Featured Presentations Chicago Ballroom D		CRWAD Featured Presentations Chicago Ballroom D		CRWAD Featured Presentations Chicago Ballroom D		CRWAD Featured Presentations Chicago Ballroom D		
	4:30	Dipti Pitta	CRWAD Featured Presentations Chicago Ballroom D		CRWAD Featured Presentations Chicago Ballroom D		CRWAD Featured Presentations Chicago Ballroom D		CRWAD Featured Presentations Chicago Ballroom D		
	4:45	55	CRWAD Featured Presentations Chicago Ballroom D		CRWAD Featured Presentations Chicago Ballroom D		CRWAD Featured Presentations Chicago Ballroom D		CRWAD Featured Presentations Chicago Ballroom D		
	5:00	CRWAD Special Symposium	CRWAD Featured Presentations Chicago Ballroom D		CRWAD Featured Presentations Chicago Ballroom D		CRWAD Featured Presentations Chicago Ballroom D		CRWAD Featured Presentations Chicago Ballroom D		
	5:15	Daniel Berckmans	CRWAD Featured Presentations Chicago Ballroom D		CRWAD Featured Presentations Chicago Ballroom D		CRWAD Featured Presentations Chicago Ballroom D		CRWAD Featured Presentations Chicago Ballroom D		
5:30	56	CRWAD Featured Presentations Chicago Ballroom D		CRWAD Featured Presentations Chicago Ballroom D		CRWAD Featured Presentations Chicago Ballroom D		CRWAD Featured Presentations Chicago Ballroom D			
		Precision livestock farming: from where we came, where to go?	CRWAD Featured Presentations Chicago Ballroom D		CRWAD Featured Presentations Chicago Ballroom D		CRWAD Featured Presentations Chicago Ballroom D		CRWAD Featured Presentations Chicago Ballroom D		

CRWAD 2021 Program:

Monday, December 6	Presenter Abstract #	Chicago D (5th) Title	Presenter Abstract #	Chicago E (5th) Title	Presenter Abstract #	Chicago C (5th) Title	Presenter Abstract #	Chicago A/B (5th) Title	Presenter Abstract #	Chicago F/G (5th) Title		
Time	Session 13	ACVM - Microbiology & Disease Pathogenesis Featured Speakers	Session 14	Epidemiology - 2	Session 15	Public Health	Session 16	Vaccinology - 1	Session 17	Immunology - 2		
Monday	8:30 am	ACVM - Distinguished Microbiologist L. Garry Adams Pathogens from the host's point of view	Chen	Prevalence and risk factors for Anaplasma marginale seropositivity in cattle in California between 2010 and 2019	Madesh	The canine Host serves as a Sentinel species for Anaplasma, Ehrlichia, and Borrelia species infections in People	Choudhary	Sustained systemic immune response following subcutaneous administration of a solid phase fat-encapsulated vaccine	Wagner	Monoclonal antibody development for horses: An update		
	8:45		61	Within herd seroprevalence of bovine anaplasmosis in Tennessee, 2000-2021	73	Initial data on the molecular epidemiology of cryptosporidiosis in humans and cattle in Akkar, Northern Lebanon	85	Nanoparticle vaccine for mucosal and systemic immunogenicity by intranasal route against infectious disease	97	Peripheral IgE+ plasmablasts secrete IgE and correlate to allergic disease severity		
	9:00		57	Comparison of statewide and herd level seroprevalence of Anaplasma marginale antibodies in Florida cattle	74	Redding	Clostridiales difficile on dairy farms and potential risk to dairy farm workers	86	Evaluation of immune responses of vaccines administered to mice uteri	98	IgE-binding monoclonal antibodies promote allergic inflammation through IL-8 production	
	9:15		63	Case-control study to identify management practices associated with illness or death from bovine anaplasmosis in Mississippi cow-calf herds	75	Enem	Isolation and Characterization of Enteric Bacteria from Abattoir Effluent in Abuja, Nigeria	87	Enterobacter-based immune interventions against Gram-negative bacterial infections in chickens	99	The effect of intra-articular corticosteroids on the systemic mRNA response in an equine acute synovitis model	
	9:30		64	Investigating the impact of intranasal vaccine against IBR, P3 and BRV on calf mortality and average daily gain	76	Llanos Soto	Safety first: needs assessment reveals adoption of COVID-19 mitigation strategies in the US food industry	88	Influenza, COVID-19 and the quest for better vaccines	100	IgD monoclonal antibody development for phenotyping maturing B-cell populations in horses	
	9:45		58	Retrospective analysis of Porcine Circovirus 2 and Porcine Circovirus 3 in the United States swine industry	77	Blair	The application of artificial intelligence to detect disease outbreaks in swine farms	89	Transcriptomics of a ranavirus reveals non-coding regulatory role of intergenic regions	101	Mast cell histamine mediates the intestinal immune response to early weaning in piglets via histamine 2 receptor (H2R) in a sex-dependent manner	
10:00 - 10:30	Break		Break		Break		Break		Break			
Time:	Session 18	ACVM - Microbiology & Disease Pathogenesis Featured Speakers	Session 19	Epidemiology - 3	Session 20	Biosecurity & Infection Control	Session 21	Modeling - 1	Session 22	Immunology - 3		
Monday	10:30 am	ACVM Featured Speaker Michael Konkel Campylobacter jejuni sets the stage for disease by manipulating the signaling of intestinal epithelial cells	Han	Prevalence of severe fever with thrombocytopenia syndrome virus in dogs and cats from the Republic of Korea	Pantaleon	Photocatalytic oxidation decontamination of indoor air, a brief review	Smith	Modeled impacts of rapid and accurate cattle tracing in a Foot-and-Mouth Disease outbreak in the US	Putnam	Isoprostanes increase endothelial cell barrier integrity independent of altered inflammatory gene expression		
	10:45		67	Apparent and true prevalence of feline leukemia virus and feline immunodeficiency virus in northern Mississippi shelter cats	79	Efficacy of a photocatalytic oxidation device in decreasing airborne pathogens	91	Using information from network meta-analyses to optimize the power and sample allocation of a new two-arm trial	103	Development of bovine intestinal organoids to study immune modulation by gut microbes		
	11:00		59	The association of hematological variables and data collected at diagnosis with metritis cure in dairy cows	80	Khanal	Feed dust as a novel diagnostic sample type for detection of African swine fever virus: proof of concept	92	When we shouldn't borrowing information from the existing network for planning a new trial	104	AEA enhanced bovine vascular endothelial cell barrier integrity during LPS challenge mediated by CB1	
	11:15		68	Association between bacterial group and persistence in the mammary gland in early lactation primiparous cows	81	Wang	Evaluation of air filters in swine farms as a surveillance method to assess the spread of airborne viruses	93	Hyperketonemia classification in dairy cows with milk Fourier-transform infrared spectroscopy and deep learning	105	Concentration of antibodies against T. foetus surface antigen TF1.17 from synthetic mRNA-transfected cells	
	11:30		70	Examining the canine infectious disease risks associated with importing dogs from Asia into Canada	82	Geaghagne	Development of capture antigens and functionalization procedures for sensor-based bovine health screening	94	Early detection of ketosis in dairy cows using computer vision and machine learning	106	Xu	Complement receptor 1-like (CR1L) (GPI-anchored C4 binding protein (C4BP))
	11:45		71	Prevalence of Bacteremia in Clinically Healthy Dairy Calves	83	Moran	Biofilm forming abilities of Salmonella serovars isolated from clinically ill livestock at 48 and 168 hrs	95	Comparative analysis of computer vision algorithms for the real-time detection of digital dermatitis in dairy cow	107	Purine receptor expression during natural Marek's disease virus infection in the lungs	
11:45	60	A novel epitope- and structure-based vaccination platform empowers broad-spectrum and precision vaccine development	72	Locke		96		108				
Lunch - 12:00 to 2:00	CRWAD Fellows Luncheon (invitation only)											
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Time:	Session 23	AAVI - Immunology Featured Speakers	Session 24	Antimicrobial Resistance/Use - 2	Session 25	Aquaculture	Session 26	Vaccinology - 2	Session 27	Preventive Medicine		
Monday	2:00 PM	AAVI - Distinguished Immunologist Gary Entrican Applying knowledge of immunological correlates to vaccine design for prevention of chlamydial abortion	Ossa-Trujillo	Effects of two-dose ceftiofur on quantities of third-generation cephalosporin, fluoroquinolone, and macrolide resistance genes in dairy cows	Heckman	Antigenic profiling of Flavobacterium columnare genetic groups affecting cultured fish in the United States	Liu	Identification of Lawsonia intracellularis proteins that stimulate cell-mediated immune response for subunit vaccine development	Kopsco	An analysis of companion animal tick encounters as revealed by photograph-based crowdsourced data		
	2:15		114	Influence of antimicrobial exposures and diet on the fecal microbiome and resistance of pre-weaned dairy calves	126	Ozdemir	Development of live attenuated Aeromonas hydrophila vaccine candidates	138	Immune responses to differing routes of immunization for a Lawsonia intracellularis subunit vaccine	150	Towards novel acaricide development against cattle fever tick: GPCR target validation by RNAi and chemical leads	
	2:30		115	Impact of dry cow therapy on the antimicrobial resistance profile of mastitis pathogens	127	Soto	Evaluation of inactivated vaccines against Lactococcus garvieae infection in rainbow trout (Oncorhynchus mykiss)	139	Epigraph Hemagglutinin Vaccine Induces Broad Cross-reactive Immunity Against Swine H3 Influenza Virus	151	Effect of monensin supplementation in stocker calves on coccidia shedding and weight gain	
	2:45		109	Farm-level study on the trends and activities of antimicrobial use in commercial dairy in Pakistan	128	Gomaa	Developing a dual live attenuated vaccine to prevent motile aeromonas septicemia and enteric septicemia of catfish	140	Transcriptome profiling of porcine dendritic cells activated by a novel nanoparticle (poly(PLGA) combination adjuvant	152	Understanding health-associated issues in dairy farms by exploring integrated data	
	3:00		117	Educational interventions to address misperceptions about antibiotic residues in milk	129	Quijano Cardé	Latent Cypripenter Herpesvirus 2 results in higher mortality of White Sturgeon after Streptococcus iniae challenge	141	Cryptic promoter activity in cDNA sequence corresponding to Arterivirus 5' untranslated region	153	Revealing RNA and protein partners of small RNAs CNC130 and CNC140 of Campylobacter jejuni	
	3:15		118	Prevalence and profiles of fluoroquinolone and macrolide resistant extended-spectrum beta-lactamase Escherichia coli isolated from dairy calf feces	130	Swain	Virulence, immunogenicity and vaccine potential of aroA and phoP mutants of Edwardsiella piscicida in zebrafish	142	Establishment of outbred pre-exposed pigs as an animal model for Chlamydia trachomatis vaccine development	154	Swine industry stakeholder perception on depopulation using water-based foam	
3:30-4:15 PM	CRWAD Business Meeting and Listening Session - Chicago Ballroom E (5th)											
Time:	Session 28	AAVI - Immunology Featured Speakers	Session 29	Bovine Respiratory Disease	Session 30	Diagnostic Testing - 2	Session 31	Modeling - 2	Session 32	Microbial Ecology		
Monday	4:15 PM	AAVI Featured Speaker John Harding Host responses following third trimester maternal PRRSV2 infection	Coetzee	Association between antimicrobial class for bovine respiratory disease (BRD) treatment and performance outcomes	Cao	Evaluation of three different commercial DNA extraction kits for chicken gut microbiota profiling	Silva	Predicting lameness and its impact on dairy herds: the welfare sub-module in the Ruminant Farm Systems model	Kalam	In-feed vs. in-water chlortetracycline on the prevalence of E. coli pathotypes involved in swine colibacillosis		
	4:30		120	Disease outcome and metabolic responses of preweaned dairy calves supplemented with Saccharomyces cerevisiae fermentation products to BRV and Pasteurella multocida coinfection	132	Armenta-Leyva	Detection of Mycoplasma hyopneumoniae antibody in processing fluids using a commercial serum ELISA	144	A simulation model to study the effects of dog density on illness and release rates in animal shelters	156	Characterizing the developing microbiome and resistome in young dairy calves without antimicrobial influence	
	4:45		111	Digital mRNA profiling of high-risk beef cattle at arrival substantiates markers of bovine respiratory disease	133	Ko	Utility of kanamycin to isolate Mycoplasma hyopneumoniae from field samples contaminated with Mycoplasma hyorhinis	145	Swine enteroids: reproduce gene expression changes observed in Lawsonia intracellularis-infected pig intestine	157	An Hfq mutant of Histophilus somni strain 2336 is attenuated and modified in multiple phenotypic properties	
	5:00		112	Detecting strain-level shifts in Mannheimia haemolytica phylogeny and function via target-enriched metagenomics	134	Storms	Application of loop mediated isothermal amplification (LAMP) for detection of Influenza A virus in swine	146	Revealing invisible links and modes of between-farm PRRSV transmission using genetic-based network analysis	158	Impacts of host density on vector abundance and transmission of bluetongue virus	
	5:15		122	Characterization of the Mannheimia haemolytica biofilm and polymicrobial interaction with other Pasteurellaceae	135	Merodio	Retrospective analysis of Mycoplasma hyorhinis infection and correlation of qPCR Ct values and direct detection by RNAScope®	147	Integrating animal movements with phylogeography to model the spread of PRRSV virus in the U.S.	159	Multi-strain dynamics of PRRSV type-2 in U.S. pig populations	
	5:30		124	Do modified-live virus respiratory vaccines influence the respiratory microbiome of cattle?	136	Munguia-Ramirez	Use of an endogenous reference control in a PRRSV RT-qPCR	148	Domestic pigs represent a novel transnational animal model for eosinophilic esophagitis	160		
5:45	125		137		149			161				
6:00-8:00 PM	Poster Session -- Salon III (7th)											

CRWAD 2021 Program:

Tuesday, December 7		Presenter Abstract #	Chicago D Title	Presenter Abstract #	Chicago E (5th) Title	Presenter Abstract #	Chicago C (5th) Title	Presenter Abstract #	Chicago A/B (5th) Title	Presenter Abstract #	Chicago F/G (5th) Title
Time:	Session 33	AVEPM - Schwabe Symposium	Session 34	Pathogen-Host Interaction - 2	Session 35	Virology - 2	Session 36	Vaccinology - 3	Session 37	Antimicrobial Resistance/Use - 3	
Tuesday	8:30 AM	AVEPM - Schwabe Recipient	Lovett 166	Acute anaplasmosis reduces breeding soundness in experimentally-infected beef bulls	Khatiwada 178	The novel ORFV protein ORFV113 activates LPA-p38 signaling	Pavulraj 184	Novel Pseudorabies Virus (PRV) Vectored bivalent Vaccine against Classical Swine Fever and Porcine Circoviruses	Ogunleye 196	Identification of genetic mechanisms of antimicrobial resistant in aquaculture pathogens	
	8:45	Dirk Pfeiffer	Filipov 167	Risk management in an ever more complex world	Niu 179	Mutations in PEDV nsp1 causes increased viral sensitivity to host interferon responses and attenuation in vivo	Artiaga 185	Natural killer T cell activation induces influenza vaccine-associated enhanced respiratory disease (VAERD) in pigs	Olatoye 197	Antibiotic Resistance Profile of Bacterial Isolates from Aquaculture Production in Ikorodu, Lagos, Nigeria	
	9:00	162	Berrios-Vazquez 168	Characterization of immortalized feline respiratory epithelial cells	Mora-Diaz 180	Modeling porcine hemagglutinating encephalomyelitis virus infection in vivo and ex vivo	Chand 186	Assessment of local innate immune responses induced by poly(d)sodium carboxylatoethylphenoxyphosphazene in pigs	Osman 198	Antimicrobial resistance trends among Escherichia coli obtained from canine clinical	
	9:15	AVEPM Featured Speaker	Lasrado 169	Dissecting the cellular landscape and transcriptome network in viral myocarditis by single-cell RNA sequencing	Li 181	Shedding dynamics, genetic variation, and reassortment of heterosubtypic influenza secondary infection in pigs	Yu 187	Immunogenicity and pathogenicity of a cell adapted PEDV oral vaccine candidate belong to non-S INDEL cluster	Osman 199	WGS analysis of plasmid-mediated colistin-resistant Escherichia coli isolates from the poultry sector in Lebanon	
	9:30	David Zilberman	Yadav 170	The cost and the lessons of the Covid pandemic	Rupasinghe 182	Molecular evolution of ORF5 gene of field PRRSV type 2 strains in the United States from 2012 to 2020	Young 188	Prescription platform vaccines as next-generation approaches for emerging pathogens FAD outbreaks	Gaire 200	Exposure to antimicrobials in PRRSV infected nursery pigs and impacts on the resistome of pre-retail pork products	
	9:45	163	Soltys 171	Salmonella Kentucky ST152 and ST198 genetic lineages show lineage specific metabolic phenotypes	Hause 183	Bovine rhinitis B virus is highly prevalent in BRD and causes upper respiratory tract infection in calves	Cheng 189	U.S. dairy producers' attitudes on male calf care and its relationship with on-farm care	201		
10:00 - 10:30	Break		Break		Break		Break		Break		
Time:	Session 38	AVEPM - Schwabe Symposium	Session 39	Immunology - 4			Session 40	Vaccinology - 4	Session 41	Food Safety	
Tuesday	10:30 AM	AVEPM Featured Speaker	Wiarda 172	Porcine gut innate lymphoid and T cells differ from circulating populations – novel single-cell RNAseq findings			Powlledge 190	Clinical effects and Histophilus somni prevalence in high-risk calves administered intranasal or parenteral vaccine	Sarkar 202	Surveillance for antibiotic residues in beef, eggs, and honey sold in East Tennessee	
	10:45	David Waltner-Towes	Gu 173	A single cell analysis of porcine thymopoiesis and thymic iNKT cells			Barletta 191	Development and Testing of Mycobacterium avium subsp. paratuberculosis DIVA Vaccines in Ruminants	Carreño Gutiérrez 203	Methods for estimating withdrawal interval recommendations for fenbendazole administered in feed to ring-necked pheasants	
	11:00	164	Madrid 174	Combination of antiviral therapies in the control of influenza infection in pigs			Hove 192	A vaccine conferring protection against virulent bovine anaplasmosis is accomplished by targeted mutagenesis	Fakhr 204	Transcriptome analysis of Campylobacter jejuni and Campylobacter coli during cold stress	
	11:15	AVEPM Featured Speaker	Proctor 175	Modified-live virus vaccination induces heterologous immunity against different type-2			Talaat 193	A heterologous prime boost vaccination strategy against Johne's disease	Enem 205	Evaluation of the Hazard Analysis Critical Control Point in the Processing Of 'Suya' Meat in Abuja, Nigeria	
	11:30	Wantanee Kalpravidh	Bettin 176	Better bridging between science and animal health policy			Ga 194	Reverse zoonosis of covid-19: Necessity of companion animal vaccines	Valeris-Chacin 206	Association of litter and cecal microbiomes with Campylobacter colonization in broilers under commercial settings	
11:45	165	Becker 177	Butyrate modulates lipopolysaccharide-induced innate responses of porcine monocytes			195		Slizovskiy 207	Molecular enrichment of whole bacterial genomes for metagenomic profiling of foodborne pathogens		
12:00	Break		Break		Break		Break		Break		
12:15 - 1:30 PM	Closing Comments and Award Presentations - Chicago D (5th)										
		Adjourn	Adjourn		Adjourn		Adjourn		Adjourn		