

Chapter 1 : Protein Annotations for Predicted protein, B8PL96_POSPM

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Effects of viscosogens on RNA transcription inside reovirus particles. *J Biol Chem* ; Clinical isolates of *Trichomonas vaginalis* concurrently infected by strains of up to four *Trichomonasvirus* species Family Totiviridae. Recruitment of cellular clathrin to viral factories and disruption of clathrin-dependent trafficking. RNA sequence determinants of a coupled termination-reinitiation strategy for downstream open reading frame translation in *Helminthosporium victoriae* virus S and other victoriviruses Family Totiviridae. Virion structure of baboon reovirus, a fusogenic orthoreovirus that lacks an adhesion fiber. Peroxisomes are signaling platforms for antiviral innate immunity. Structure of *Fusarium poae* virus 1 shows conserved and variable elements of partitivirus capsids and evolutionary relationships to picobirnavirus. *J Struct Biol* ; Localization of mammalian orthoreovirus proteins to cytoplasmic factory-like structures via nonoverlapping regions of muNS. Backbone trace of partitivirus capsid protein from electron cryomicroscopy and homology modeling. Requirements for the formation of membrane pores by the reovirus myristoylated mu1N peptide. Probing the transcription mechanisms of reovirus cores with molecules that alter RNA duplex stability. Atomic structure reveals the unique capsid organization of a dsRNA virus. Victorivirus, a new genus of fungal viruses in the family Totiviridae. Infectious myonecrosis virus has a totivirus-like, subunit capsid, but with fiber complexes at the fivefold axes. A positive-feedback mechanism promotes reovirus particle conversion to the intermediate associated with membrane penetration. Partitivirus structure reveals a subunit, helix-rich capsid with distinctive surface arches formed by quasisymmetric coat-protein dimers. Formation of the factory matrix is an important, though not a sufficient function of nonstructural protein muNS during reovirus infection. Peptides released from reovirus outer capsid form membrane pores that recruit virus particles. *EMBO J* ; Human papillomavirus type 16 E7 oncoprotein associates with the centrosomal component gamma-tubulin. *J Virol* ; Thermolabilizing pseudoreversions in reovirus outer-capsid protein mu1 rescue the entry defect conferred by a thermostabilizing mutation. Silencing and complementation of reovirus core protein mu2: *J Gen Virol* ; Virus-derived platforms for visualizing protein associations inside cells. *Mol Cell Proteomics* ; 6: Guanidine hydrochloride inhibits mammalian orthoreovirus growth by reversibly blocking the synthesis of double-stranded RNA. A role for molecular chaperone Hsc70 in reovirus outer capsid disassembly. *J Biol Chem* ; Thermostabilizing mutations in reovirus outer-capsid protein mu1 selected by heat inactivation of infectious subvirion particles. Mammalian reovirus, a nonfusogenic nonenveloped virus, forms size-selective pores in a model membrane. Reovirus mu1 structural rearrangements that mediate membrane penetration. Reovirus outer capsid protein mu1 induces apoptosis and associates with lipid droplets, endoplasmic reticulum, and mitochondria. Structure of avian orthoreovirus virion by electron cryomicroscopy and image reconstruction. Features of reovirus outer-capsid protein mu1 revealed by electron cryomicroscopy and image reconstruction of the virion at 7. Carboxyl-proximal regions of reovirus nonstructural protein muNS necessary and sufficient for forming factory-like inclusions. Putative autocleavage of reovirus mu1 protein in concert with outer-capsid disassembly and activation for membrane permeabilization. *J Mol Biol* ; Comparisons of the M1 genome segments and encoded mu2 proteins of different reovirus isolates. *Virol J BMC* ; 1: Protective immunoglobulin A and G antibodies bind to overlapping intersubunit epitopes in the head domain of type 1 reovirus adhesin sigma1. Increased ubiquitination and other covariant phenotypes attributed to a strain- and temperature-dependent defect of reovirus core protein mu2. Endocytosis by random initiation and stabilization of clathrin-coated pits. Putative autocleavage of outer capsid protein mu1, allowing release of myristoylated peptide mu1N during particle uncoating, is critical for cell entry by reovirus. Nibert ML, Kim J. Conserved sequence motifs for nucleoside triphosphate binding unique to turreted Reoviridae members and coltiviruses. Orthoreovirus and aquareovirus core proteins: Reovirus nonstructural protein muNS recruits viral core surface proteins and entering core particles to factory-like inclusions. Cathepsin S supports acid-independent infection by some reoviruses. Nucleoside and RNA triphosphatase activities of Orthoreovirus transcriptase cofactor

mu2. Reovirus polymerase lambda3 localized by electron cryomicroscopy of virions at 7. *Nat Struct Biol* ; The delta region of outer-capsid protein mu1 undergoes conformational change and release from reovirus particles during cell entry. Chandran K, Nibert ML. Animal cell invasion by a large nonenveloped virus: Template recognition and formation of initiation complexes by the replicase of a segmented double-stranded RNA virus. The viral sigma1 protein and glycoconjugates containing alpha-linked sialic acid are involved in type 1 reovirus adherence to M cell apical surfaces. Disulfide bonding among mu1 trimers in mammalian reovirus outer capsid: Reovirus sigmaNS protein localizes to inclusions through an association requiring the muNS amino terminus. RNA synthesis in a cage - structural studies of reovirus polymerase lambda3. The hydrophilic amino-terminal arm of reovirus core-shell protein lambda1 is dispensable for particle assembly. Strategy for nonenveloped virus entry: Mammalian reovirus nonstructural protein muNS forms large inclusions and colocalizes with reovirus microtubule-associated protein mu2 in transfected cells. Loss of activities for mRNA synthesis accompanies loss of lambda2 spikes from reovirus cores: Sites and determinants of early cleavages in the proteolytic processing pathway of reovirus surface protein sigma3. Reovirus core protein mu2 determines the filamentous morphology of viral inclusion bodies by interacting with and stabilizing microtubules. Nibert ML, Duncan R, Tidona CA, Darai G. *The Springer Index of Viruses*. Rotavirus translation control protein takes RNA to heart. Structure of the reovirus membrane penetration protein, mu1, in a complex with its protector protein, sigma3. Thermostability of reovirus disassembly intermediates ISVPs correlates with genetic, biochemical, and thermodynamic properties of major surface protein mu1. Mammalian reovirus L2 gene and lambda2 core spike protein sequences and whole genome comparisons of reoviruses Type 1 Lang, Type 2 Jones, and Type 3 Dearing. Reoviruses and their replication. Complete in vitro assembly of the reovirus outer capsid produces highly infectious particles suitable for genetic studies of the receptor binding protein. Structure of the reovirus outer capsid and dsRNA binding protein sigma3 at 1. Transcriptional activities of reovirus RNA polymerase in re-coated cores. Initiation and elongation are regulated by separate mechanisms. Reovirus nonstructural protein sigmaNS binds in multiple copies to single-stranded RNA and shares properties with single-stranded DNA binding proteins. Reovirus nonstructural protein muNS binds to core particles but does not inhibit their transcription and capping activities. Identification of the mRNA guanylyl transferase region and active site in reovirus lambda2 protein. Structure of the reovirus core at 3. Mammalian reovirus M3 gene sequences and conservation of coiled-coil motifs near the carboxyl terminus of the muNS protein. Mammalian reovirus L3 gene sequences and evidence for a distinct amino-terminal region of the lambda1 protein. In vitro re-coating of reovirus cores with baculovirus-expressed outer-capsid proteins mu1 and sigma3. Reovirus virion-like particles obtained by re-coating ISVPs with baculovirus-expressed sigma3 protein: Susceptibility of the reovirus attachment protein to cleavage during proteolytic processing of virions is determined by a sequence polymorphism in the neck region. Structure of mammalian orthoreovirus particles. *Curr Top Microbiol Immunol* ;I: Binding site for S-adenosyl-L-methionine in a central region of mammalian orthoreovirus lambda2 protein. Evidence for activities in mRNA cap methylation. Internal structures containing transcriptase-related proteins in top component particles of mammalian orthoreovirus. Amino terminus of reovirus nonstructural protein sigmaNS is important for ssRNA binding and large complex formation. IRIS Explorer software for radial-depth cueing reovirus particles and other macromolecular structures determined by transmission cryoelectron microscopy and three-dimensional image reconstruction. Localization of a C-terminal region of lambda2 in reovirus cores. Noble S, Nibert ML. Core protein mu2 is a second determinant of NTPase activities by reovirus cores.

Chapter 2 : Ideal Protein Ratio for Turkeys - UNIVERSITY OF MISSOURI

23 Protein Analysis (K Baker and S Flatman). 24 Glycosylation of Medicinal Products (E Tarelli). 25 Immunogenicity of Impurities in Cell-Derived Vaccines (M Duchene, J Descamps and I Pierard).

It is hypothesized that the poult fed ideal protein diets will perform similarly to poult fed conventional diets at reduced cost. Project Methods Basic description: Floor pen trials will be conducted with commercial turkeys under standard conditions. Thirty-two pens of 50 poult will be utilized in a randomized block design with 8 pen replicates per treatment as outlined below. Poult will be fed one of 8 dietary treatments differing in a single amino acid. An NRC control diet would be the standard diet fed and will be used to determine if titrations plateau at maximal growth rates. All other management will be standard as outlined in our standard operating procedures. The trials will be set up as a randomized block design with each treatment randomly allocated to 8 blocks of 6 pens such that each treatment is allotted to each block one time. Diets will be formulated based on our latest requirement estimates to meet the ideal protein profile and will include primarily corn and soybean meal with a by-product addition. Similar ingredients will be used for all formulations and all formulations will be considered practical ie. Birds will be group weighed by pen to 6 wks, individually weighed wks. Data collected will include cumulative body weight gain, cumulative feed: Generally block effects are not significant and this portion of the variance will be added into the error mean square. Based on data set, further regression analysis may be needed. The level of significance will be set at. No differences were noted in performance of any of the diets at 15 weeks and a slight depression in growth was seen in B at 18 weeks. No differences were seen among the other treatments. Digestible sulfur amino acid requirements of male turkeys from weeks J. Effects of Calsporin on turkey performance, carcass yield and nitrogen reduction. Int J Poultry Science 3: This is primarily due to the lack of information about requirements for the modern turkey. A number of trials will be conducted to determine the amino acid requirements of the turkey on a digestible basis which should allow for more accurate feeding of birds resulting in both cost savings and reduced nitrogen output. Impacts Reduced feed costs and reduced nitrogen output are the expected results Publications Firman, J. Animal protein ingredients in poultry diets. Use of fats from the rendering industry. Use of by-product feeds in poultry. Use of poultry by-product meal from the rendering industry. Recent research on use of by-product feeds in poultry. Digestible lysine requirements of male turkeys during the week period. Moore, D; K Baker. Digestible sulfur amino acid requirements of male turkeys during the week period. Computer formulation of low protein diets. The starter period ideal ratio has been previously presented and recent work has focused on the lysine and sulfur amino acid requirements during the later growth periods. These are currently in various states of publication with all of the sulfur amino acid work published and the largets share of the lysine work to market weight published as well. Impacts The work to date allows producers to reduce protein levels of their diets and use digestible formulation to reduce feed costs. Publications Moore et al. Digestible sulfur AA requirement of male turkeys during the wk period. Intl J Poul Sci 2: Baker et al, Digestible lysine requirements of male turkeys during the wk period. This data has been combined into a model which can be used to predict digestible amino acid content based on body weight of the bird and the ideal protein that has been determined for the starter period and previously published. Impacts Impact of this project is expected in the form of reduced feed costs and reduced nitrogen excretion. In the past 5 years most turkeys have been shifted to diets based on digestible amino acid formulation. The next step is reduction of protein levels. Digestible sulfur amino acid requirement for male turkeys to five weeks of age. A comparison of quadratic versus segmented regression procedures for estimating nutrient requirements. Data for lysine and SAA to market are available for toms and will be completed shortly for hens. A computer model of the data has been assembled and is currently under a preliminary test. The model is available and has been sent to production companies. Ongoing work will continue to elucidate the requirements for other AA. Impacts The diets that can be formulated using the new requirements will save the industry about three percent on feed costs as well as substantially reduce the nitrogen excretion of turkeys due to the reduced protein diets. Publications Kamyab, A and J. Digestible threonine requirement of nicholas poult during the starter period.

The requirements and ideal ratio for the starter periods are following. Estimated digestible amino acid requirements for turkeys wks: Impacts These data will lead to fundamental change in the feeding practices of the turkey industry. Effects of an enzyme product Ronozyme W containing B-glucanase and xylanase activities on performance of turkey poult fed a wheat based diet. Digestible lysine requirements for tom turkeys to six weeks of age. Effects of microbial phytase on apparent ileal digestibility of amino acids in turkey poult fed a corn-soybean meal diet formulated on an ideal protein basis. Digestible lysine requirements for tom turkeys from six to twelve weeks of age. Digestible methionine requirements for male turkeys from weeks of age. Digestible isoleucine requirement of starting turkey poult. Relationship between cystine and betaine in low methionine diets. Utilization of high levels by ruminant by-product meal in diets for male turkeys when using digestible formulation. Digestible valine requirement of female Nicholas poult during the starter period. Effects of biogenic amines on broiler performance. Digestible threonine requirement of female Nicholas poult during the starter period. While work is still ongoing with this project, estimated requirements to market weight can be found in Dec. The requirements and ideal ratio for the starter period are following. Digestible sulfur amino acid requirement of starting turkeys. A low protein diet for turkey poult. Ideal protein in turkeys. Digestible lysine requirement of female turkeys during the starter period. This diet has then been used in further studies that have delineated the ideal amino acid profile which is now being designated the Missouri Ideal Turkey Profile. Utilization of rendered by-products as soybean meal replacement formulated on a digestible amino acid basis. Early stage turkey nutrition: Ideal protein and implications for all aspects of poultry production. Nottingham University Firman, J. Several experiments have been conducted to determine a low protein basal diet and an estimate of the ideal amino acid ratio. A low protein diet that contains This diet was needed before further work could be performed. Further experiments indicate that the digestible amino acid requirement for the young turkey is 1. An estimate of the ideal protein for young turkeys expressed as a percentage of the lysine requirement follows: Current work is focusing on the digestible threonine requirement, digestible valine requirement and the energy: Growth and carcass characteristics of broilers fed low protein-threonine supplemented diets. Applied Poultry Research 5: Effects of feather meal on the performance of turkeys. This has resulted in several accomplishments. Ideal ratio in use for wk.

Chapter 3 : Medicines from Animal Cell Culture - Glyn N Stacey, John M Davis - Bok () | Bokus

Medicines from Animal Cell Culture focuses on the use of animal cell culture, which has been used to produce human and veterinary vaccines, interferon, monoclonal antibodies and genetically engineered products such as tPA and erythropoietin.

Chapter 4 : Contents - Cell Culture - ALPF Medical Research

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Chapter 5 : Nibert Lab | Publications

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Chapter 6 : Baker's yeast vs Yeast - In-Depth Nutrition Comparison

where \hat{I}^n is the secondary chemical shift of a given atom of the source and target protein segment; the parameters k_h and k_s were both set to , and the values of the remaining parameters and of the amino acid similarity matrix \hat{I}^n ResType were taken from Cornilescu et al.

Chapter 7 : Protein Annotations for Octamer-binding transcription factor 7, PO3F2_HUMAN

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