

all possessed the *ecpA* gene with or without the *saa* gene, previously known as an adhesin for LEE-negative STEC isolates. The plasmid profiling demonstrated that the 4 STEC isolates harbor the 60-megadalton virulence plasmid, which was confirmed by the PCR against the *ehxA* gene. The two STEC O121:H10 isolates could not produce the *rpoS* gene product for unknown reasons although its biological significance is unclear. Notably, our STEC isolates were highly susceptible to the antimicrobials evaluated and one clonal set was identified by PFGE analysis.

Conclusions: Our results demonstrated the recent prevalence of STEC among retail meats and meat by-products in Korea as well as their genetic properties. Further study might be needed to elucidate the *in vivo* virulence of the STEC isolates and to define geographical difference between our STEC and those from other countries.

References

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P-061

Characterization of Blood Circulating CD209 (DC-SIGN) Expressing Cells in Bovine using Flow Cytometry

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Introduction: Dendritic cells (DC) play a central role in tailoring the immune response to pathogens. CD209 (DC-specific ICAM3-grabbing nonintegrin, DC-SIGN) is a C-type lectin receptor expressed on DC that plays a critical role on DC function and pathogen recognition. It facilitates DC migration to peripheral tissues and local lymph nodes and mediates T cell activation by binding ICAM-2 (CD102) and ICAM-3 (CD50). The absence of monoclonal antibody (mAb) to bovine CD209 has limited the ability to characterize the phenotype and function of DC in cattle. To address this issue we developed and used a mAb to CD209 to characterize the phenotype of CD209-expressing cells in bovine blood using flow cytometry.

Materials and Methods: Bovine CD209 recombinant protein was expressed and purified using pET30a expression system (Novagen). The purified recombinant protein was used for immunization of BALB/c mice to produce a mAb for bovine CD209. The established mAb (209MD26A) was used to detect and characterize blood circulating CD209 positive cells using flow cytometric analysis.

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characterize blood circulating CD209 positive cells using flow cytometric analysis.

Results: About 1 – 2.5 % of bovine PBMC subset expressed CD209. This subset highly expressed the molecules functionally associated with antigen presentation, MHC II, CD40, CD80, and CD86. In addition, the lineage markers expressed on myeloid DC, CD11b, CD11c, and CD172a, were also highly expressed on these cells, indicating this subset contains myeloid DC.

Conclusions: A mAb to bovine CD209 (209MD26A) was successfully developed in the current study. The mAb detects a population in PBMC corresponding to human CD209⁺DC. The availability of this mAb provides opportunity for further characterization of DC in ruminants.

P-062

Effectiveness of Brucellosis Eradication Program in the Republic of Korea during Decline Period

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Introduction: A national surveillance program of bovine brucellosis has been performed in Korea since 1960s. Due to strong implementation based on test-and-slaughter policy, both annual numbers of outbreak farms and reactor animals detected were in decreasing since year 2008. This study evaluated economical benefit from Korean's efforts to eradicate bovine brucellosis.

Materials and Methods: Governmental statistics on livestock and brucellosis were extracted from web-based database. Four different deterministic models were established using Vensim PLE 6.3 with susceptible to infectious structure. One transient model was for brucellosis in cattle and the second was for human. These two models were linked through cattle to human transmission. In addition, two separate models were developed for beef and dairy cattle, respectively.

Results: Incremental savings, estimated by subtracting actual number of reactors from the number of cattle reactors predicted at the endemic stable transmission status, was 96,346 cattle cases between 2006 to 2013. The incremental saving of cattle cases were predicted to 154,361 during 2014 to 2020, and 281,324 when five more years are included. The total cost averted for the period of 2006 to 2013 was 327,927 million for cattle only while it increased to 328,206 million with human cases.

Conclusions: The national program for eradicating bovine brucellosis has been well performed. It contributed to the decrease both number of cases in cattle and human. However, with the test-and-slaughter policy, benefits on financial aspects won't be expected in near future. Concerning eradicating program of bovine brucellosis, macroeconomic effects is greater than microeconomic ones.