Previous issue | Next issue | Archive

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Review

The Importance and Challenges of Primary Chicken Embryo Liver Cells in Studies of Poultry Viral Diseases: A Review

Sohaimi NM and Clifford UC.

J. World Poult. Res. 13(4): 364-372, 2023; pii: S2322455X2300039-13

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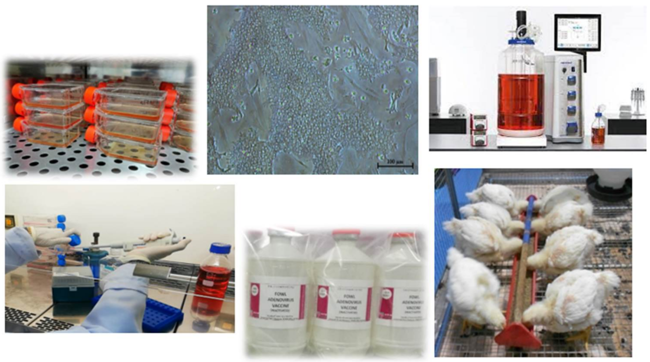

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ABSTRACT: Primary chicken embryo liver (CEL) cells are derived from the liver tissue of chicken embryonated eggs (CEE) using an aseptic isolation technique and growth under a controlled atmosphere in an artificial environment for cell attachment and proliferation. Although this primary cultured cell has been established for more than six decades, utilization of primary cells is still the preferable medium nowadays as the “gold standard” due to several advantages over other diagnostic techniques. Cells provide better adaptability of the viruses and easily mimic the natural host environment with high virus titration. The volume of virus suspension could be increased by applying an immortal chicken embryo liver-derived cell line. The current review aimed to highlight the importance and challenges of using primary chicken embryo liver cells in poultry virus studies. Primary CEL cells are widely used as an alternative host for diagnosis of infectious poultry viruses, cultivation and passaging of virus isolates, and vaccine production. Yet, there are some challenges and limitations in handling this primary cell, which requires appropriate facilities and environment to sustain the rapid growth of confluent monolayer cells, as highlighted in this paper. The availability of specific pathogen-free CEE is a major concern due to limited resources globally, thus creating a challenge for vaccine manufacturers to upscale the cultured cells. Future improvement of primary cell culture preparation necessitates new technology by applying cellular microcarrier in the bioreactor machine for efficient cell growth and subsequent routine virus cultivation. This study can help the researchers understand the advantages of primary CEL cells and their applications due to their significant impact on poultry viruses.

Keywords: Chicken embryonated eggs, Embryo liver cells, Poultry, Viruses, Vaccine

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The Role of Newcastle Disease Virus in Cancer Therapy: A Systematic Review

Review

The Role of Newcastle Disease Virus in Cancer Therapy: A Systematic Review

Rajaei N, Faraji N, Khabaz PB, Yousefi M, Khavidaki NL, and Omranzadeh A.

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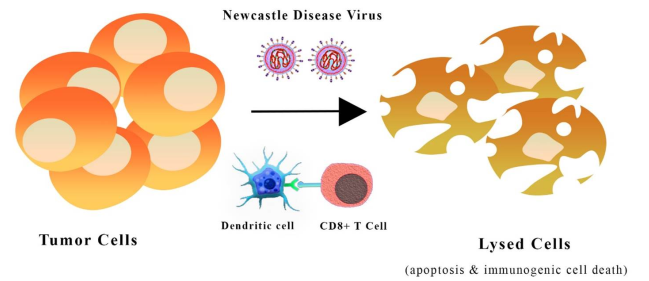
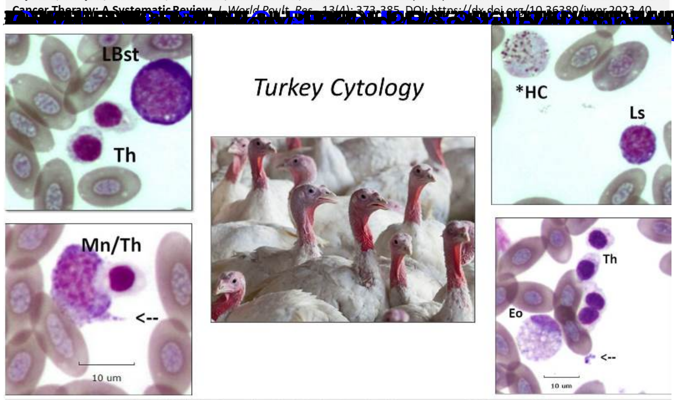
Graphical abstract text:
This figure provides a comprehensive overview of Newcastle Disease Virus (NDV) in cancer therapy, highlighting its attributes, mechanisms of action, and future perspectives. NDV exhibits selective replication in cancer cells, inducing apoptosis and immunogenic cell death. Preclinical and clinical studies suggest promising results, especially in combination with chemotherapy, immunotherapies, and targeted therapies, showcasing NDV's potential as a versatile tool in cancer treatment.



Rajaei N, Faraji N, Khabaz PB, Yousefi M, Khavidaki NL, and Omranzadeh A (2023). **The Role of Newcastle Disease Virus in Cancer Therapy: A Systematic Review**. *J. World Poult. Res.*, 13(4): 373-385. DOI: https://dx.doi.org/10.36380/jwpr.2023.40



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Parameters	EGO-	EGO+	EG1	EG2	EG3
FI(g)	35.24 ± 3.16	35.47 ± 3.22	35.36 ± 3.14	34.28 ± 2.88	35.65 ± 3.11
BWG (g)	7.5 1± 1.21	7.34 ± 0.96	8.21 ± 1.65	7.80 ± 1.25	7.73 ± 1.57
FCR	4.69 ± 0.52	4.83 ± 1.03	4.31 ± 0.35	4.40 ± 0.49	4.61 ± 0.56
Mortality (%)	3	2	2	2	3

Treatment with *Eucalyptus globulus* (EG) at supplementation rates of 0,25%; 0,5% and 1% (EG1, EG2 and EG3) and without antibiotic. Treatment without EG and no antibiotic (EG0-) and treatment with antibiotic and without EG (EG0+). Feed Intake (FI); Body Weight Gain (BWG); Feed Conversion Ration (FCR).

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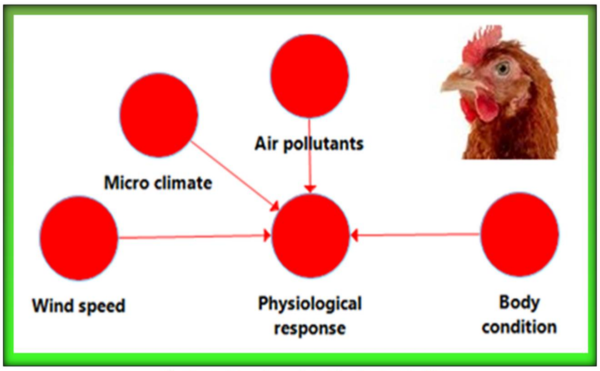

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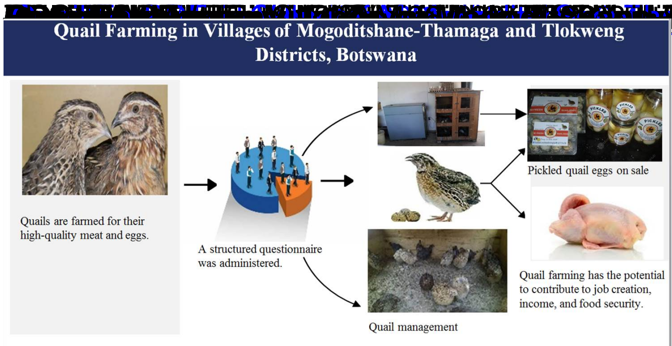
J. World Poult. Res., 13(4): 419-425. DOI: https://dx.doi.org/10.36380/jwpr.2023.44



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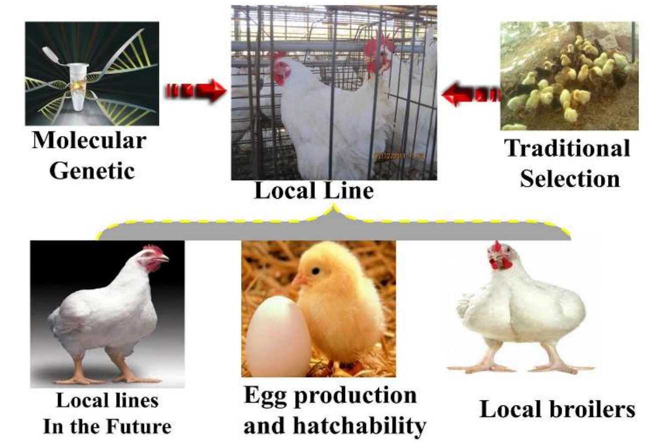

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