شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

بسم الله الرحمن الرحيم

HANAA ALY

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جامعة عين شمس

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قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

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تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

HANAA ALY

Evaluation of Peripheral Lymphocyte Subsets' Alteration and IL6 Serum Level Correlated with Severity in Corona Virus Disease 2019 (COVID-19)

Thesis

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in ***Medical Microbiology and Immunology***

Presented by

Manar Magdy Mohamed Abd El-Hady
M.B.B.ch., Faculty of Medicine, Ain Shams University

Supervised by

Prof. Dr. Amany Tharwat Abd-Elrahman
Professor of Medical Microbiology and Immunology
Faculty of Medicine, Ain Shams University

Dr. Noha Nagi Mohammed Salah El-Deen
Assistant Professor of Medical Microbiology and Immunology
Faculty of Medicine, Ain Shams University

Dr. Nesma Gamal Ahmed Elsayed Elsheikh
Lecturer of Geriatric and Gerontology medicine
Faculty of Medicine, Ain Shams University

Faculty of Medicine, Ain Shams University
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Manar Magdy Mohamed Abd El-Hady

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List of Abbreviations

Abb.	Full term
ACE2	*Angiotensin-converting enzyme 2*
ADCC	*Antibody-mediated cellular cytotoxicity*
ADE	*Antibody-dependent enhancement*
Ag	*Antigen*
APCs	*Ag-presenting cells*
ARDS	*Acute respiratory distress syndrome*
AUC	*Area under the curve*
BCG	*Bacillus Calmette–Guérin*
Caco-2	*Colorectal adenocarcinoma*
CAR	*Chimeric Antigen Receptor*
CAR-T	*Chimeric antigen receptor T cells*
CBC	*Complete blood count*
CFU	*Colony forming unit cells*
CNTF	*Ciliary inhibitor factor*
COVID-19	*Corona Virus Disease 2019*
CRP	*C-reactive protein*
CSG	*Coronavirus Study Group*
CT	*Computed tomography*
CT-1	*Cardiotropin-1*
CTLs	*Cytotoxic T lymphocytes*
DCs	*Dendritic cells*
E- protein	*Envelope protein*
EDA	*Egyptian Drug Authority*
ELISA	*Enzyme linked immunosorbent assay*
FDA	*Food and Drug Administration*
FITC	*Fluorescein isothiocyanate*
FS	*Forward scatter*
gp	*Glycoprotein*
hAPN	*Human aminopeptidase N*
HAT	*Human airway trypsin like protease*
HCoVs	*Human coronaviruses*
HCWs	*Health-care workers*
HEE	*Hemagglutinin esterase*

List of Abbreviations cont...

Abb.	Full term
HS	*Highly significant*
Huh-7	*Human Hepatoma derived cells*
ICTV	*International Committee of Virus Taxonomy*
IFN-γ	*Interferon-gamma*
Ig	*Immunoglobulin*
IIFT	*Indirect Immunofluorescence Test*
IL-6	*Interleukin-6*
IL-6R	*IL-6 receptor*
IQR	*Interquartile range*
JAK-STAT	*Janus kinase/signal transducer and transcription activator*
LAMP	*Loop-mediated isothermal amplification*
LIF	*Leukemic inhibitory factor*
M- Protein	*Membrane protein*
Mab	*Monoclonal antibodies*
MERS-CoV	*Middle East Respiratory Syndrome Coronavirus*
MHC	*Major histocompatibility complex*
N- protein	*Nucleocapsid protein*
nAbs	*Neutralizing IgG antibodies*
NIH	*National Institutes of Health*
NK	*Natural killer cell*
NPN	*Neuropoietin*
NS	*Non significant*
Nsp	*Non structural protein*
OD	*Optical density*
ORF	*Open reading frame*
OSM	*Oncostatin M*
PBS	*Phosphate buffer solution*
PC5	*Phycoerythrin-cyanine*
PE	*Phycoerythrin*
PL^{pro}	*Papain-like proteases*

List of Abbreviations cont...

Abb.	Full term
pp	*Polyprotein*
PPE	*Personal protective equipment*
PCR	*Polymerase chain reaction*
qRT-PCR	*Quantitative RT-PCR*
RANKL	*RANK ligand*
RBD	*Receptor binding domain*
RdRp	*RNA dependent RNA polymerase*
ROC curve	*Receiving operating characteristic curve*
rRT-PCR	*Real-time Reverse Transcriptase Polymerase Chain Reaction*
RTC	*Replicase-transcriptase complex*
S	*Significant*
S-protein	*Spike protein*
SARI	*Severe acute respiratory illness*
SARS-CoV	*Severe acute respiratory syndrome coronavirus*
SD	*Standard deviation*
Sgp	*Soluble glycoprotein*
sIL-6 R	*Soluble interleukin-6 receptor*
SPSS	*Statistical package for Social Science*
SS	*Side Scatter*
SST	*Serum separator tube*
TCR	*T cell receptor*
TGF β	*Transforming growth factor beta*
Th	*T helper*
TLRs	*Toll-like receptors*
TMPRSSII	*Transmembrane serine protease 2*
TNF	*Tumor Necrosis factor*
Treg	*T regulatory cells*
WBCs	*White blood cells*
WHO	*World health organization*
2019-nCoV	*2019 novel coronavirus*

INTRODUCTION

Coronaviruses belong to the family coronaviridae. They are enveloped, positive-sense, single-stranded RNA viruses. There are four known human coronaviruses that cause mild upper respiratory diseases which are 229E, NL63, OC43 and HKU1. In addition, there are two types of extremely pathogenic coronaviruses belong to genus betacoronavirus with zoonotic origin which are severe acute respiratory syndrome coronavirus (SARS-CoV) and Middle east respiratory syndrome coronavirus (MERS-CoV), which result in severe respiratory syndrome in humans ***(Channappanavar et al., 2014).***

In December 2019, an outbreak of another coronavirus was reported in Wuhan, Hubei, China. The disease was officially called "Corona Virus Disease 2019" (COVID-19). Later in 11 March 2020, World Health Organization (WHO) declared COVID-19 a pandemic ***(Liu and Li, 2020)***.

The primary mode of infection is via spraying droplets from infected individuals through their cough or sneeze. Patients with COVID-19 have symptoms like fever with cough, fatigue, muscle pain and dyspnea. In addition, many infected patients remain completely asymptomatic and yet are fully capable of transmitting the virus **(*Vardhana and Wolchok, 2020)***.