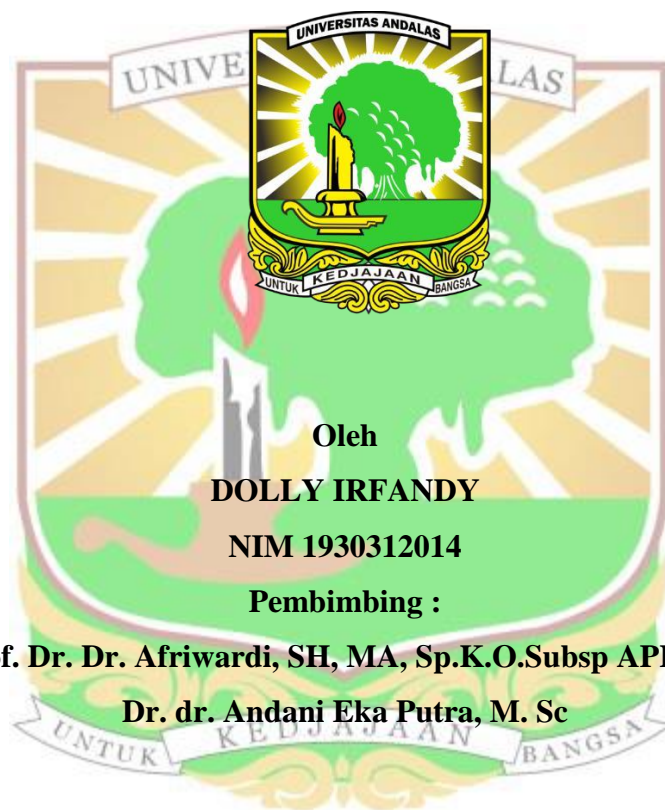


**DISERTASI**

**ANALISIS EKSPRESI IL-4, IFN- $\gamma$  DENGAN MUC5AC PADA SEKRET HIDUNG PASIEN COVID-19**



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## ABSTRAK

### ANALISIS EKSPRESI IL-4, IFN- $\gamma$ DENGAN MUC5AC PADA SEKRET HIDUNG PASIEN COVID-19

Dolly Irfandy

*Coronavirus Disease 2019* (COVID-19) merupakan penyakit pernapasan akut yang disebabkan oleh SARS CoV-2 yang menyebabkan destruksi epitel paru. Penelitian bertujuan untuk menganalisis bagaimana hubungan ekspresi mRNA IL-4, IFN- $\gamma$  dan ekspresi MUC5AC pada sekret hidung COVID-19.

Penelitian ini merupakan penelitian analitik dengan desain *cross sectional* yang dilakukan pada pasien terdiagnosa positif dan negatif COVID-19 terkonfirmasi melalui pemeriksaan Rt-qPCR yang memenuhi kriteria inklusi dan eksklusi. Sampel penelitian terdiri dari 40 orang kelompok kasus positif COVID-19 dan 40 orang kelompok kontrol negatif COVID-19 yang dipilih secara *simple random sampling*. Data diperoleh melalui anamnesis, pemeriksaan sekret hidung dengan RT-PCR. Data yang diperoleh kemudian dianalisis menggunakan program SPSS.

Pada analisis karakteristik sampel, didapatkan 58% wanita terkonfirmasi positif COVID-19. Didapatkan peningkatan ekspresi relatif IL-4, IFN- $\gamma$  dan MUC5AC pada sekret hidung pasien COVID-19. IL-4 didapatkan peningkatan ekspresi 7.18 kali, IFN- $\gamma$  meningkat sebanyak 4.93 kali dan gen MUC5AC meningkat sebanyak 2.07 kali. Ekspresi IL-4 pada COVID-19 dengan gejala hidung berair meningkat 4.75 kali, IFN- $\gamma$  meningkat 1.58 kali dan MUC5AC meningkat sebanyak 9.77 kali. Ekspresi IL-4 pada COVID-19 dengan anosmia meningkat 1.65 kali, IFN- $\gamma$  meningkat 1.96 kali, MUC5AC meningkat sebanyak 13.18 kali.

Penelitian ini menyimpulkan bahwa terdapat peningkatan ekspresi sitokin pro-inflamasi dan anti-inflamasi pada sekret COVID-19.

**Kata kunci :** COVID-19, IL-4, IFN- $\gamma$ , MUC5AC, hidung berair, anosmia

## ABSTRACT

### EXPRESSION ANALYSIS OF IL-4, IFN- $\gamma$ BY MUC5AC ON NASAL DISCHARGE OF COVID-19 PATIENTS

Dolly Irfandy

Coronavirus Disease 2019 (COVID-19) is an acute respiratory disease caused by SARS CoV-2. SARS CoV-2 infection causes lung epithelial destruction. The study aims to analyze the relationship between IL-4 mRNA expression, IFN- $\gamma$  and MUC5AC expression in COVID-19 nasal discharge.

This research is analytic research with a cross-sectional design. The population in this study were patients with a positive and negative diagnosis of COVID-19 confirmed by Rt-qPCR examination and according to the inclusion and exclusion criteria. Selection of the sample using a simple random sampling technique. The research sample consisted of 40 groups of positive cases of COVID-19 and 40 groups of negative controls of COVID-19. The sample selection using a simple random sampling technique. Data was obtained through anamnesis, examination of nasal discharge by RT-PCR examination. The data obtained were then analyzed using the SPSS program.

The sample characteristics in this study showed that 58% of women and 42% of men were confirmed positive for COVID-19. The relative expression of IL-4 increased by 7.18 times, IFN- $\gamma$  increased by 4.93 and the MUC5AC gene increased by 2.07 in the nasal discharge of COVID-19 patients. IL-4 expression increased by 4.75, IFN- $\gamma$  increased by 1.58 and MUC5AC increased by 9.77 in COVID-19 patients with a runny nose. IL-4 expression increased by 1.65, IFN- $\gamma$  increased by 1.96, and MUC5AC increased by 13.18 in COVID-19 accompanied by anosmia symptoms.

This study concludes that there is an

increased expression of pro-inflammatory and anti-inflammatory cytokines in the nasal discharge of COVID-19.

**Keywords :** COVID-19, IL-4, IFN-  $\gamma$ , MUC5AC, runny nose, anosmia

