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laboratory medicine.*

## PEARLS OF LABORATORY MEDICINE

2019 冠状病毒病 (COVID-2019)

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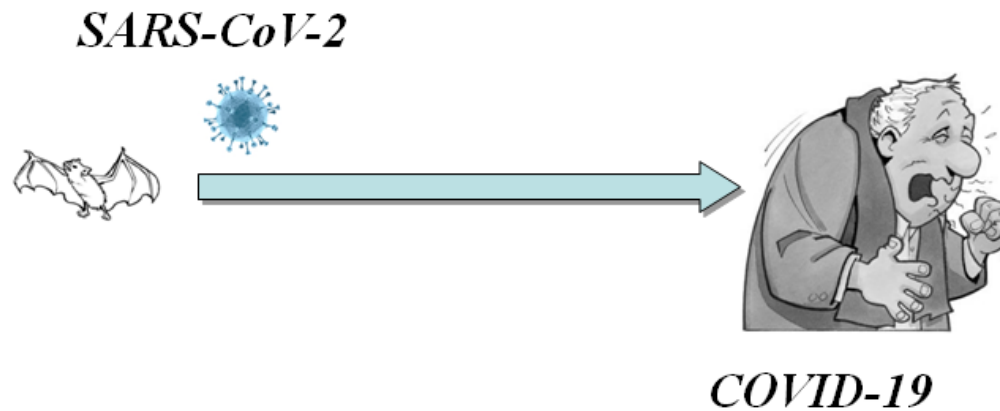
翻译：王萍 宾西法尼亚大学

DOI: 10.15428/CCTC.2020.319541



# 2019 冠状病毒病

## Coronavirus Disease 2019 (COVID)



Mattiuzzi C, Lippi G. Which lessons shall we learn from the 2019 novel coronavirus outbreak? *Ann Transl Med* 2020;8(3):48.

# 2019 冠状病毒病

## 近年发生的冠状病毒疫情



严重急性呼吸系统综合症 (SARS)

2002年

中东呼吸综合症 (MERS)

2012年

2019冠状病毒病

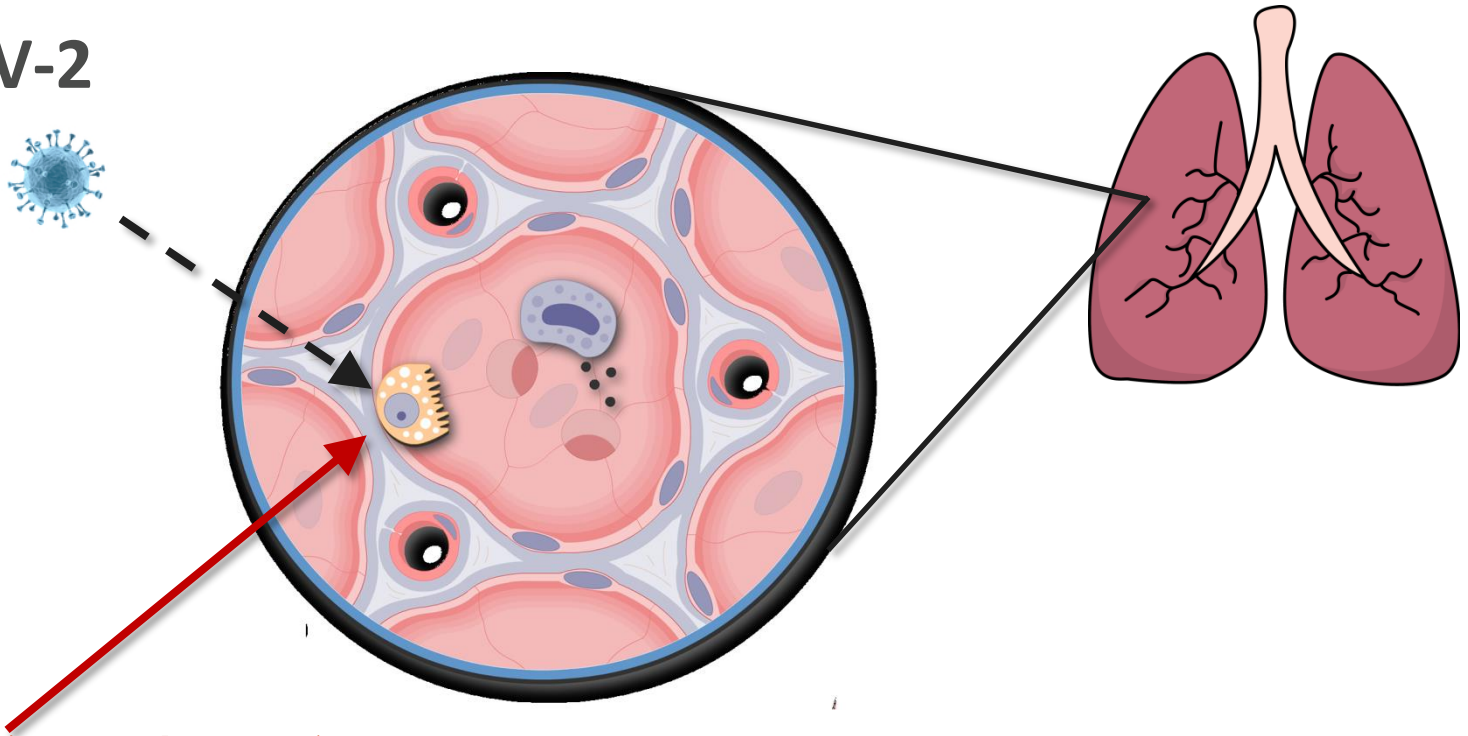
2019年

Mattiuzzi C, Lippi G. Which lessons shall we learn from the 2019 novel coronavirus outbreak? *Ann Transl Med* 2020;8(3):48.



# 2019 冠状病毒病

## SARS-CoV-2

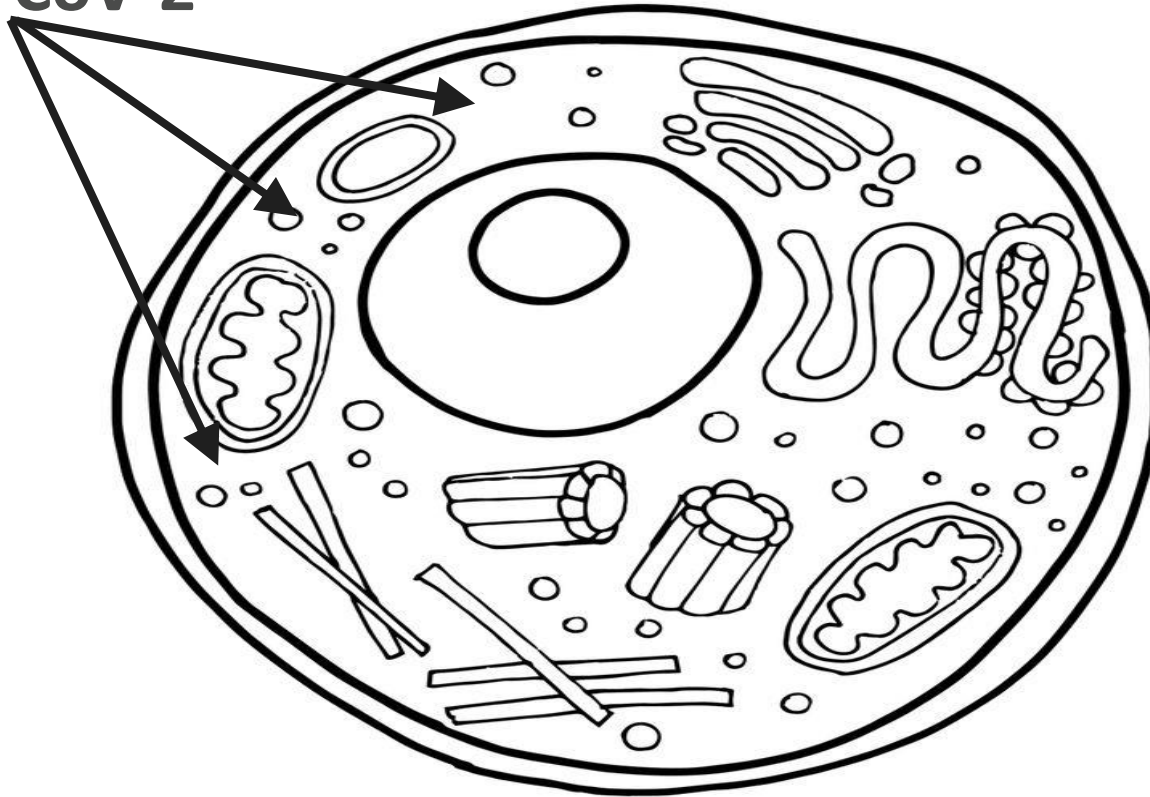


## II 型肺泡上皮细胞

Zhang H, et al Angiotensin-converting enzyme 2 (ACE2) as a SARS-CoV-2 receptor: molecular mechanisms and potential therapeutic target. *Intensive Care Med.* 2020 Mar 3. doi: 10.1007/s00134-020-05985-9. [Epub ahead of print].

# 2019 冠状病毒病

SARS-CoV-2



Mattiuzzi C, Lippi G. Which lessons shall we learn from the 2019 novel coronavirus outbreak? *Ann Transl Med* 2020;8(3):48.

## 这种新型病毒疾病的突出特点包括：

### 人与人之间的传染：

- 症状明显时传染风险最高
- 无症状时也有传染可能，一般发生在症状出现前4-6天
- 痊愈期症状消失后的传染在非正式文献中也有报道

### 潜伏期：

- 一般 2-14 天

Mattiuzzi C, Lippi G. Which lessons shall we learn from the 2019 novel coronavirus outbreak? *Ann Transl Med* 2020;8(3):48.

## 2019冠状病毒病的突出临床特点包括:

- 发热
- 咳嗽
- 呼吸急促
- 肌肉疼痛
- 疲劳无力
- 不寻常的间歇性头痛

Mattiuzzi C, Lippi G. Which lessons shall we learn from the 2019 novel coronavirus outbreak? *Ann Transl Med* 2020;8(3):48.

## 2019冠状病毒病的临床表现分布:

- 轻症 ~80%病人
- 重症 ~10-15%病人
- 危重 ~2-5%病人

World Health Organization. Coronavirus disease 2019 (COVID-19) Situation Report – 44.  
Available at: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/>



## 以下为感染后发展为重症的高危人群:

- 老年人 (> 60 岁)
- 有严重基础病的病人(如癌症, 糖尿病, 心血管疾病, 慢性呼吸系统疾病)

Wu Z, McGoogan JM. Characteristics of and Important Lessons From the Coronavirus Disease 2019 (COVID-19) Outbreak in China: Summary of a Report of 72 314 Cases From the Chinese Center for Disease Control and Prevention. JAMA. 2020 Feb 24. doi: 10.1001/jama.2020.2648. [Epub ahead of print]

## 已有的死亡率数据:

- 中东呼吸综合症 (MERS): 约34%
- 严重急性呼吸系统综合症 (SARS): 约10%
- 2019冠状病毒病: 约2-4%

Lippi G, Plebani M. The novel coronavirus (2019-nCoV) outbreak: think the unthinkable and be prepared to face the challenge. *Diagnosis (Berl)*. 2020 Jan 28. doi: 10.1515/dx-2020-0015. [Epub ahead of print].

# 2019 冠状病毒病

## 不同年龄群中的死亡率分布：

<10岁：	<1%
10-19岁：	1%
20-29岁：	8%
30-79岁：	87%
≥80岁：	3%

Wu Z, McGoogan JM. Characteristics of and Important Lessons From the Coronavirus Disease 2019 (COVID-19) Outbreak in China: Summary of a Report of 72 314 Cases From the Chinese Center for Disease Control and Prevention. JAMA. 2020 Feb 24. doi: 10.1001/jama.2020.2648.  
[Epub ahead of print]



## 目前SARS-CoV-2病源性诊断主要通过:

- 上呼吸道样本的收集(也即鼻咽拭子和咽拭子)
- 用实时反转录聚合链式反应(rRT-PCR)对样本进行分析

Centers for Disease Control and Prevention. Interim Guidelines for Collecting, Handling, and Testing Clinical Specimens from Persons Under Investigation (PUIs) for Coronavirus Disease 2019 (COVID-19). Available at: <https://www.cdc.gov/coronavirus/2019-nCoV/lab/guidelines-clinical-specimens.html>.



以下为一种经过验证的用实时反转录聚合链式反应(rRT-PCR)诊断SARS-CoV-2的流程:

- 筛查: 针对E 基因
- 确认: 针对RdRp基因
- 进一步确认: 针对N基因

Corman VM, et al. Detection of 2019 novel coronavirus (2019-nCoV) by real-time RT-PCR. Euro Surveill. 2020 Jan;25(3). doi: 10.2807/1560-7917.ES.2020.25.3.2000045



# 2019 冠状病毒病

2019冠状病毒病常见的检测项目异常结果包括:

- ↓ 淋巴细胞减少 (35-75%)
- ↑ C反应蛋白增加 (CRP 75-93%)
- ↑ 乳酸脱氢酶增加(LDH; 27-92%)
- ↑ 红细胞沉降率增加(ESR; up to 85%)
- ↑ D-二聚体增加(36-43%)
- ↓ 白蛋白减少 (50-98%)
- ↓ 血红蛋白减少 (41-50%)

Lippi G, Plebani M. Laboratory abnormalities in patients with COVID-2019 infection. Clin Chem Lab Med. 2020 Mar 3. doi: 10.1515/cclm-2020-0198.

[Epub ahead of print].



# 2019 冠状病毒病

和2019冠状病毒病发展为重症相关联的具有预后性的检测结果:

↓ 淋巴细胞计数减少

↓ 白蛋白减少

↑ 中性细胞计数增加

↑ 乳酸脱氢酶增加

↑ 转氨酶增加

↑ 心肌生化标记物增加(如心肌钙蛋白)

↑ D-二聚体增加

↑ 前降钙素原增加

↑ C反应蛋白增加

Lippi G, Plebani M. Laboratory abnormalities in patients with COVID-2019 infection. Clin Chem Lab Med. 2020 Mar 3. doi: 10.1515/cclm-2020-0198.

[Epub ahead of print].

# Disclosures/Potential Conflicts of Interest

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- **Patents:** No disclosures





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