RNA-seq of a lung sample from a male COVID19 deceased patient (age 74) submitted by Icahn School of Medicine at Mount Sinai does not show the anaerobic/aerobic homeostasis disruption observed in other patient samples - an artifact of post-mortem procedures?

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Letter

Here, I have analyzed the RNA-seq of a lung sample from a male COVID19 deceased patient (age 74) submitted by Icahn School of Medicine at Mount Sinai (Accid:PRJNA615032). There are two replicates, which I have pooled into a single sample. The analysis (Table 1, SI/bact.txt) does not show the anaerobic/aerobic homeostasis disruption observed in some patient samples [1–3]. Although not all samples show anaerobic/aerobic homeostasis disruption [4–6], they are possibly patients in the early phase of the disease. The findings in the current deceased patient (viral load is very low, SI/viralreads.fa) however does not align with the hypothesis [7], unless there are artifacts arising from obtaining the lung sample. Since obligate anaerobic bacteria can't tolerate more than 5% oxygen, and atmospheric oxygen is much higher, could these have been killed after atmospheric exposure? Note, anaerobic bacteria are present - it's just that they don't seem to have colonized the lung of the deceased patient.

Table 1: **Bacterial reads from RNA-seq of a lung sample from a male COVID19 deceased patient (age 74) submitted by Icahn School of Medicine at Mount Sinai (Accid:PRJNA615032).** Two replicates have been pooled into a single sample. This does not show the anaerobic/aerobic homeostasis disruption observed in some patient samples [1–3]. Although not all samples show anaerobic/aerobic homeostasis disruption [4–6], they are possibly patients in the early phase of the disease. The findings in the current deceased patient however does not align with the hypothesis [7], unless there are artifacts arising from obtaining the lung sample. Since obligate anaerobic bacteria cant tolerate more than 5% oxygen, and atmospheric oxygen is much higher, could these have been killed after atmospheric exposure? Note, anaerobic bacteria are present (there is Prevotella with 100 reads) - its just that they dont seem to have colonized the lung of the deceased patient. FAC-ANE=facultatively anaerobic (aerobic, but capable of switching to fermentation if oxygen is absent).

NReads	Bacteria	Type	Diseases
16420	Bacillus	FAC-ANE	Inhalation or respiratory anthrax
13686	Moraxella	aerobic	otitis media in infants and children [8]
7114	Acinetobacter	aerobic	soft tissue and urinary tract infections [9]
4313	Buchnera	aerobic	[10]
3678	Pseudomonas	FAC-ANE	
3304	Pseudescherichia	FACANE	
2905	Raoultella	FACANE	
2806	Endozoicomonas	FACANE	[11]
2703	Xylella	FACANE	
2409	Klebsiella	FACANE	[12]
2038	Mycoplasma	Lack a cell wall	respiratory Mycoplasma pneumoniae [13]
1987	Streptomyces	aerobic (paradox)	
1870	Sphingomonas	aerobic	
1757	Cutibacterium	obligateanaerobic	chronic blepharitis and endophthalmitis [14]
1454	Pelomonas	FACANE	
1294	Corynebacterium	aerobic	diphtheria toxin [15]
1140	Alloactinosynnema	aerobic	[16]
1095	Glaesserella	FACANE	[17]
903	Staphylococcus	FAC-ANE	Boils, impetigo, food poisoning, cellulitis, and toxic shock syndrome
870	Lactobacillus	FACANE	[18]

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