

Twitter Thread by [Francisco de Asis](#)



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[@franciscodeasis](#)



[Thread] Pangolin CoV... or Bat CoV in pangolins samples?

TLDR: A researcher of the team that sequenced the pangolins samples had taken samples in the mine of RaTG13 and in the place where RmYN02 was collected, also caught bats in Yunnan. Probably contaminated pangolin samples

[@Daoyu15](#) was the first to note that the raw sequence reads of the pangolins “contained unexpected reads and was in serious risk of contamination” in early June 2020. But now we can explain how it was possible to happen this in Guangdong
<https://t.co/SbBi7JXX5A>

Jin-Ping Chen, the corresponding author of the first paper of the pangolins, and LiBiao Zhang, who has been sampling the mine of RaTG13 and the place in Mengla where RmYN02 was collected, are close colleagues in GIABR & GIZ

<https://t.co/Mf0AeRatge>

<https://t.co/C444TLT6JO>

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LiBiao Zhang was probably in the mine on 27-Jul-12 with HKU team (he is co-author in Lau et al. (2017)) and a week later on 06-Aug-12 with WIV in their 1st visit. Surprisingly, he is co-author in the AdV isolates paper, but not credited in Ge et al. (2016)

<https://t.co/ZNW6sd976T>

Viruses	Accession	Genera	Spei	Cite	Group	sa	EH	cl	ci	ca	cave nam	cave prov	cave region	collecti	collec	
Bat coronavirus MLHJ4	KU182954	Alphacoronavirus		Xu et al. (2016)	PLA			MLHJ4	CN	YN	MLHJ Menglian	Yunnan	Southern		Jul-12	
Bat coronavirus MLHJ6	KU182968	Alphacoronavirus		Xu et al. (2016)	PLA			MLHJ6	CN	YN	MLHJ Menglian	Yunnan	Southern		Jul-12	
Bat coronavirus MLHJ8	KU182969	Alphacoronavirus		Xu et al. (2016)	PLA			MLHJ8	CN	YN	MLHJ Menglian	Yunnan	Southern		Jul-12	
Bat coronavirus MLHJ22	KU182970	Alphacoronavirus		Xu et al. (2016)	PLA			MLHJ22	CN	YN	MLHJ Menglian	Yunnan	Southern		Jul-12	
Bat coronavirus MLHJ34	KU182971	Alphacoronavirus		Xu et al. (2016)	PLA			MLHJ34	CN	YN	MLHJ Menglian	Yunnan	Southern		Jul-12	
Bat coronavirus MLHJ35	KU182963	Betacoronavirus	SARSr	Xu et al. (2016)	PLA			MLHJ35	CN	YN	MLHJ Menglian	Yunnan	Southern		Jul-12	
Mammalian orthoreovirus MRV-XN3662	KT444451	Orthoreovirus		Yang et al. (2015)	WIV	3662			CN	HB	XN Xianning	Hubei	Far from Yunnan	19-Jul-12	Jul-12	
Rousettus leschenaulti bocaparnovirus 1 Rb-BtBoV1_56C_ML_Y	MF682925	Dependoparvovirus		Lau et al. (2017)	HKU+GIABR+CDC			56C	CN	YN	ML Menglia	Yunnan	Southern	24-Jul-12	Jul-12	
Rhinolophus pusillus adeno-associated virus 1 Rp-BtAAV1_34C_MF682926	MF682926	Dependoparvovirus		Lau et al. (2017)	HKU+GIABR+CDC			34C	CN	YN	MJ Mojiang	Yunnan	Southern	27-Jul-12	Jul-12	
Rhinolophus pusillus bocaparnovirus 1 Rp-BtBoV1_48C_MJ_YN_Y	MF682922	Dependoparvovirus		Lau et al. (2017)	HKU+GIABR+CDC			48C	CN	YN	MJ Mojiang	Yunnan	Southern	27-Jul-12	Jul-12	
Rhinolophus pusillus bocaparnovirus 2 Rp-BtBoV2_83C_MJ_YN_Y	MF682923	Dependoparvovirus		Lau et al. (2017)	HKU+GIABR+CDC			83C	CN	YN	MJ Mojiang	Yunnan	Southern	27-Jul-12	Jul-12	
Mammalian orthoreovirus RbMRV-YN2012	KX087105	Orthoreovirus		Wang et al. (2015b)	CDC+Oth				CN	YN	? YN Unknown	Yunnan	YN Unknown	01-Aug-12	Aug-12	
Rat bocavirus MKRN/010812/1-RV	KX901832	Bocaparnovirus							CN	HK		Hong Kong	Far from Yunnan	01-Aug-12	Aug-12	
Bat mastadenovirus WIV12	KT698856	Mastadenovirus		Tan et al. (2017)	WIV+GIABR+YIEDC			WIV12	CN	YN	MJ Mojiang	Yunnan	Southern	06-Aug-12	Aug-12	
Bat mastadenovirus WIV13	KT698852	Mastadenovirus		Tan et al. (2017)	WIV+GIABR+YIEDC			WIV13	CN	YN	MJ Mojiang	Yunnan	Southern	06-Aug-12	Aug-12	
WIV15	Not found	Unknown			WIV			WIV15	CN	? ?	Unknown	Unknown	Unknown			
Miniopiterus bat coronavirus BtCoV/3709	KP876516	Alphacoronavirus	1	Ge et al. (2016)	WIV	3709			CN	YN	TG Tongguan	Yunnan	Southern	06-Aug-12	Aug-12	
Miniopiterus bat coronavirus BtCoV/3710	KP876518	Alphacoronavirus	1	Ge et al. (2016)	WIV	3710			CN	YN	TG Tongguan	Yunnan	Southern	06-Aug-12	Aug-12	
Rhinolophus bat coronavirus BtCoV/3716	KP876509	Alphacoronavirus	1	Ge et al. (2016)	WIV	3716			CN	YN	TG Tongguan	Yunnan	Southern	06-Aug-12	Aug-12	
Hipposideros bat coronavirus BtCoV/3723 HbCoV/3723	KP876529	Alphacoronavirus	HKU10	Ge et al. (2016)	WIV	3723			CN	YN	TG Tongguan	Yunnan	Southern	06-Aug-12	Aug-12	
Miniopiterus bat coronavirus BtCoV/3728-1	KP876521	Alphacoronavirus	1	Ge et al. (2016)	WIV	3728	1		CN	YN	TG Tongguan	Yunnan	Southern	06-Aug-12	Aug-12	
Miniopiterus bat coronavirus BtCoV/3728-2	KP876522	Alphacoronavirus	HKU8	Ge et al. (2016)	WIV	3728	2		CN	YN	TG Tongguan	Yunnan	Southern	06-Aug-12	Aug-12	
Miniopiterus bat coronavirus BtCoV/3736-1	KP876506	Alphacoronavirus	1	Ge et al. (2016)	WIV	3736	1		CN	YN	TG Tongguan	Yunnan	Southern	06-Aug-12	Aug-12	
Miniopiterus bat coronavirus BtCoV/3736-2	KP876505	Alphacoronavirus	HKU8	Ge et al. (2016)	WIV	3736	2		CN	YN	TG Tongguan	Yunnan	Southern	06-Aug-12	Aug-12	
Hipposideros bat coronavirus BtCoV/3740-1	KP876530	Alphacoronavirus	HKU10	Ge et al. (2016)	WIV	3740	1		CN	YN	TG Tongguan	Yunnan	Southern	06-Aug-12	Aug-12	
Hipposideros bat coronavirus BtCoV/3740-2	KP876531	Betacoronavirus	Lineag	Ge et al. (2016)	WIV	3740	2		CN	YN	TG Tongguan	Yunnan	Southern	06-Aug-12	Aug-12	
Rhinolophus bat coronavirus BtCoV/3750	KP876539	Alphacoronavirus	HKU2	Ge et al. (2016)	WIV	3750			CN	YN	TG Tongguan	Yunnan	Southern	06-Aug-12	Aug-12	
Rhinolophus bat coronavirus HKU2 3755	MF094702	Alphacoronavirus	SADSR	Zhou et al. (2018), Wang	WIV+EcoH+DNUS				CN	YN	TG Tongguan	Yunnan	Southern	06-Aug-12	Aug-12	
Miniopiterus bat coronavirus BtCoV/3759-1	KP876514	Alphacoronavirus	1	Ge et al. (2016)	WIV	3759	1		CN	YN	TG Tongguan	Yunnan	Southern	06-Aug-12	Aug-12	
Miniopiterus bat coronavirus BtCoV/3759-2	KP876515	Alphacoronavirus	HKU8	Ge et al. (2016)	WIV	3759	2		CN	YN	TG Tongguan	Yunnan	Southern	06-Aug-12	Aug-12	
Miniopiterus bat coronavirus BtCoV/3760-1	KP876512	Alphacoronavirus	1	Ge et al. (2016)	WIV	3760	1		CN	YN	TG Tongguan	Yunnan	Southern	06-Aug-12	Aug-12	
Miniopiterus bat coronavirus BtCoV/3760-2	KP876513	Alphacoronavirus	HKU8	Ge et al. (2016)	WIV	3760	2		CN	YN	TG Tongguan	Yunnan	Southern	06-Aug-12	Aug-12	
Miniopiterus bat coronavirus BtCoV/3767	KP876542	Alphacoronavirus	HKU8	Ge et al. (2016)	WIV	3767			CN	YN	TG Tongguan	Yunnan	Southern	06-Aug-12	Aug-12	
Rhinolophus bat coronavirus BtCoV/3772	KP876540	Alphacoronavirus	HKU2	Ge et al. (2016)	WIV	3772			CN	YN	TG Tongguan	Yunnan	Southern	06-Aug-12	Aug-12	
Coronavirus PREDICT CoV-56 PREDICT_CoV-56/LAP12-G1-0029	KX286290	Betacoronavirus		Anthony et al. (2017)	PREDICT				LA			_Laos_		07-Aug-12	Aug-12	
Paramyxovirus PREDICT_PMV-31 isolate PREDICT_PMV-31/EHA-15i KP563807	KP563807	Paramyxovirus							1	CN	YN	FG Fugong	Yunnan	Western	09-Aug-12	Aug-12
Hantavirus China/YN06_Hantavirus/PREDICT_EHA-156-12-YN-FG0 KX442788	KX442788	Orthohantavirus		Ge et al. (2016b)	WIV+EcoH				1	CN	YN	FG Fugong	Yunnan	Western	09-Aug-12	Aug-12
Vole astrovirus Ec/FG004/Yunnan	KJ571436	KYV Astrovirus		Hu et al. (2014)	WIV+EcoH				4	CN	YN	FG Fugong	Yunnan	Western	09-Aug-12	Aug-12
Vole astrovirus Ec/FG005/Yunnan	KJ571437	KYV Astrovirus		Hu et al. (2014)	WIV+EcoH				5	CN	YN	FG Fugong	Yunnan	Western	09-Aug-12	Aug-12
Hantavirus China/YN06_Hantavirus/PREDICT_EHA-156-12-YN-FG0 KX442784	KX442784	Orthohantavirus		Ge et al. (2016b)	WIV+EcoH				5	CN	YN	FG Fugong	Yunnan	Western	09-Aug-12	Aug-12
Vole astrovirus Ec/FG006/Yunnan	KJ571438	KYV Astrovirus		Hu et al. (2014)	WIV+EcoH				6	CN	YN	FG Fugong	Yunnan	Western	09-Aug-12	Aug-12

What if those SARS2-like sequences were not actually in the pangolins and were just mere lab contamination of a close relative to SARS2 used in the lab? (we have recently seen many other cases of contamination in other samples)

GIABR have been sampling in Yunnan, even in Mojiang pic.twitter.com/sErzG5ZQVH

— Francisco de Asis (@franciscodeasis) November 27, 2020

LiBiao Zhang was also sampling in the same location as Holmes. GPS coordinates are 4 km apart, although it seems that Holmes' team obfuscated a bit the location. He may even have sampled a close relative bat unnoticed that was infected with similar virus

<https://t.co/KDNirmZ9DX>

Pangolin CoV from lab contamination is increasingly evident:

Liang et al. (2019) [Libiao Zhang] collected bats in Apr-15 in the same location as Zhou et al. (2020b) [Holmes] collected RmYN02 in 2019, with a 100% ident. cyt <https://t.co/CQuAbKcUAu><https://t.co/qZaTEidKZ1>
pic.twitter.com/TEej6YQAmz

— Francisco de Asis (@franciscodeasis) February 6, 2021

Also, Libiao Zhang was in Yunnan in July 2019 catching bats with students. So, we have not only two possible sources of lab contamination, but also we cannot rule out a lab zoonosis if any bats were sent to GIABR/GIZ and kept in the same room as pangolins

<https://t.co/i7ZdsTURKi>



大足鼠耳蝠、棕果蝠 (摄影: 张礼标)

Thanks [@BillyBostickson](#) for the link

Another possibility is that one of these students (Libiao Zhang is probably already well immunized) served as a human intermediate host for the pangolins. Not being able to infect h2h but h2p? I think it is less likely but cannot rule out either
<https://t.co/AvHO3pe6IA>

About shoddy safety protocols:

Clumsy students and researchers from Wuhan collecting bat samples with inadequate PPE (sometime around June-July 2019)<https://t.co/FsK7jw11hl>

— The Seeker (@TheSeeker268) May 18, 2020

Also pointed by @TheSeeker: "the binding affinity of the pangolin ACE2 receptor for SARS-CoV-2 RBD was later on reported to be low" <https://t.co/d0yMNAqZeG>

There is a fifth possible source of the contamination, but from a Bayesian point of view it should be less likely. We will explain it in an special thread on lab contamination soon

I forgot to add this to this threat: <https://t.co/aZzyhLMGmK>

Oops, what a coincidence! Libiao Zhang (from GIABR, the lab of pangolins) forgot to mention his paper with WIV in which they isolated viruses collected from "Mojiang" (sic). He did not forget the other paper with them (in same journal a few issues before) <https://t.co/iAPXAmMamk>

— Francisco de Asis (@franciscodeasis) January 25, 2021

Just found a great coincidence, although it could be spurious: Jin-Ping Chen is corresponding author of Yuan et al. (2014) with ZLS and Daszak. He was nearby while the miners outbreak was taking place. Although, they apparently did not sampled Ra, Rs or Rm <https://t.co/HC52X3sbgP>

So, it is possible that WIV & EcoH stopped in TG between 07-Apr-12 & 11-Apr-12 when moving from Yuanjiang to Mengla. In those days the miners started "re-cleaning" the mineshaft. I guess that "1st day in mine" & "1st symptoms" dates are approx.<https://t.co/Ea9rqNzZYX>

— Francisco de Asis (@franciscodeasis) September 3, 2020

To end, something very important: Do not discard this "Pangolin CoV" story! The metagenomes are probably the most trustworthy data along with 4991 RdRp.

Uploaded on 2019-09-23!

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Virome of dead pangolin individuals Metagenome

Identifiers: SRA: [SRP223042](#)
 BioProject: [PRJNA573298](#)
 Study Type: Other
 Abstract: Viral diversity and pathogens of dead Malay pangolin samples
 External Link: [Viral Metagenomics Revealed Sendai Virus and Coronavirus Infection of javanica\).](#)

Related Files

Organism	Sample	File Name	Size	Updated
Manis javanica	SAMN12809949	lung02.1.fq.gz	2.5 Gb	2019-09-23 22:46:44
Manis javanica	SAMN12809949	lung02.2.fq.gz	2.5 Gb	2019-09-23 22:47:16
Manis javanica	SAMN12809952	lung07.1.fq.gz	911.6 Mb	2019-09-23 22:32:36
Manis javanica	SAMN12809952	lung07.2.fq.gz	935.8 Mb	2019-09-23 22:32:18
Manis javanica	SAMN12809953	lung08.1.fq.gz	768.6 Mb	2019-09-23 22:31:02
Manis javanica	SAMN12809953	lung08.2.fq.gz	780.6 Mb	2019-09-23 22:31:05
Manis javanica	SAMN12809954	lung09.1.fq.gz	848.7 Mb	2019-09-23 22:33:06
Manis javanica	SAMN12809954	lung09.2.fq.gz	872.4 Mb	2019-09-23 22:33:23
Manis javanica	SAMN12809955	lung11.1.fq.gz	1.1 Gb	2019-09-23 22:31:07
Manis javanica	SAMN12809955	lung11.2.fq.gz	1.2 Gb	2019-09-23 22:31:30