

## #COVID-19

### 'Morning After' Nasal Spray



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Pinpointing the routes that the COVID-19 virus takes in and out of the nasal cavity could make possible a "morning after" spray to prevent infection, say researchers.

Imagine someone just coughed on you on a flight, in line at the store, anywhere. If only there were a "morning after" nasal spray that could knock out respiratory viruses' ability to colonize your nose and throat.

#### Inside The Nose

The nose and airway are lined with epithelial tissue consisting of many types of cells: basal cells, goblet cells, and multiciliated cells, which make up about 80% of all cells in the nasal epithelium.



Multiciliated cells form a protective barrier to keep viruses from entering the airway. Jackson and his colleagues zoomed in on two structures found on multiciliated epithelial cells: cilia and microvilli.

Cilia are spaghetti-like appendages sprouting from the outward-facing surfaces of various cells. A single nasal epithelial cell may host as many as 400 of these whiplike strands on its nasal-cavity-facing surface, all continuously beating in harmony. They're topped by a thin layer of a protein called mucin-closely related to the key protein in mucus-and, atop that, a coat of mucus.

Mucin molecules can hook up with one another to form a mesh akin to an elastic, three-dimensional chain-link fence, preventing larger viruses such as SARS-CoV-2 from getting into upper-airway cells, Jackson says. The mucus coat entraps viral particles, bacteria, environmental debris, and cell-breakdown junk and keeps underlying cells moist.

Upper-airway epithelial cilia nudge through this mucus layer, their synchronized beat generating a wave that pushes the mucus and its entrapped particles along, like a slow-moving river, to where it can be expectorated or, alternatively, swallowed and digested.

#### Organoids With Cilia

To see, close up, what happens during a nascent viral infection, Jackson and his associates used a sophisticated tissue culture method to generate what they call airway



organoids, which mimic normal airways. While lacking blood vessels and immune cells, these organoids otherwise fully recapitulate the architecture of the nasal epithelium, including an intact mucociliary layer and well-developed multiciliated cells.

The scientists inoculated the cultures by incubating them in the same dish with SARS-CoV-2. With light and electron microscopy and immunochemical staining, they monitored the epithelial cells for viral entry, replication and exit.

Only ciliated cells became infected. Electron microscopy showed that the virus initially attaches only to cilia. Six hours after organoids were incubated with SARS-CoV-2, many virus particles were dotting the cilia's sides from the tips down. Even 24 hours after inoculation, the virus was replicating only in a few cells. It took 48 hours for massive replication to occur.

SARS-CoV-2 needs a full day or two to start replicating full-tilt in real life, too.

"Once the virus gets through that barrier," he says, "it can replicate freely in underlying cells." Depleting the cilia, by knocking down levels of a protein critical to cilia formation in nasal epithelial cells, severely slowed down SARS-CoV-2 infection.

The researchers pinpointed enzymes in the cell, massively switched on by SARS-CoV-2 infection, that were causing the microvilli's transformation. Inhibiting these enzymes ground that aberration to a halt and greatly diminished the virus's spread to other cells.

Omicron is more contagious, and, as expected, it infected airway-organoid multiciliated cells more quickly than the older strain used for the other SARS-CoV-2 experiments. But inhibiting viral entry or exit in airway cells still proved effective, even for this highly infectious variant.

The findings identify new targets for a nasally applied drug that, by impeding ciliary motion or microvilli gigantism, could prevent even unknown respiratory viruses—the kind you meet say, at a pandemic—from making themselves at home in your nose or throat.

Jackson says substances used in these experiments could perhaps be optimized for use in, say, nasal sprays soon after a respiratory viral exposure, or as prophylactics.

# The Return of Vikram & Betaal



Sunita Pant Bansal  
A literature enthusiast

Sunita's forte is to decode Hindu scriptures to show their relevance and application in today's times. She has authored 25 books for adults and young adults decoding the philosophy of mythology and a thousand books for children on folk literature and scriptures, which are sold in multiple languages globally. She explores and reinterprets the timelessness of characters from the epics and foundational texts in her stories, seamlessly blending mythology and history with real life.

Sunita's writing journey started at the age of 7 years, and has continued ever since. She started writing poems, amusing anecdotes, short stories and articles and became a columnist by the age of 20 years. Her articles and columns appeared in all the major national dailies and magazines. She joined the Times of India group first as sub-editor Vama (monthly magazine) and later as the editor Saturday Times (weekly). Sunita's next leap was to join an educational publishing house as their editor-in-chief first and later a partner and director of the company where she started writing for children, which continued for decades thereafter. Meanwhile she had moved on from writing articles to writing books for all age groups. Her final stop was setting up her own company, creating content for all forms of

media, with the core being edutainment, as Sunita has always believed that education need not be always sombre and that storytelling is a powerful tool for teaching.

Amongst Sunita's recent best-sellers are Krishna The Management Guru (2020) and Everyday Gita (2021), both published by Rupa Publications. Her latest novel The Return of Vikram and Betaal (2022) published by



The unveiling of the book at Durbal Hall, at the 16th edition of JLF held at hotel Clarks Amer.

## #THE CONTEMPORARY

Readomania Publishers, was released in the Jaipur Literature Festival this year.

### Questions & Answers

**Q. You are renowned as a mythologist. What sparked your interest in mythology?**  
A. I have grown up amidst Gita Press books, which are one of the largest if not the largest source of mythological literature in our country. I still have those books in my personal library. My grandmother used to tell me stories from scriptures and folk literature. When I started reading, my grandfather used to encourage me to read mythological stories or biographies of spiritual masters. With that kind of background, it was not surprising nor was it difficult for me to write on the subject.

**Q. You have had a long career as a publisher. How did you enter the publishing world?**  
A. I stumbled into publishing by accident. I started writing columns as a nutritionist, as that was what I studied to be - a dietician. While writing articles and columns on my subject, I also dabbled in doing interviews, writing travel features and so on, and was asked to edit by the Times Group, and so I became an editor. I learnt a lot on the job in TOI. After this I was offered the role of editor-in-chief in an educational publishing house, where eventually I became a partner and director. And that's how I became a publisher! Ultimately, I set up my own publishing company, where we developed books for other publishers. 16 years later, I decided that my own writing was getting overshadowed

by my publishing operations, so I shut down my company, and now I am totally focussed on my writing. From writer to editor to publisher, and now I am back to being a full-time writer.

**Q. From a prolific children's and spiritual book author what made you shift genres to write this incredible crime fiction, The Return of Vikram and Betaal? How much time did you take to write the book?**  
A. Our scriptures, epics, folk literature have always fascinated me and I think I have managed to do that. The stories in this book are real, relevant, and engrossing by themselves. Those who have read this book are able to identify some of the cases, which adds to the

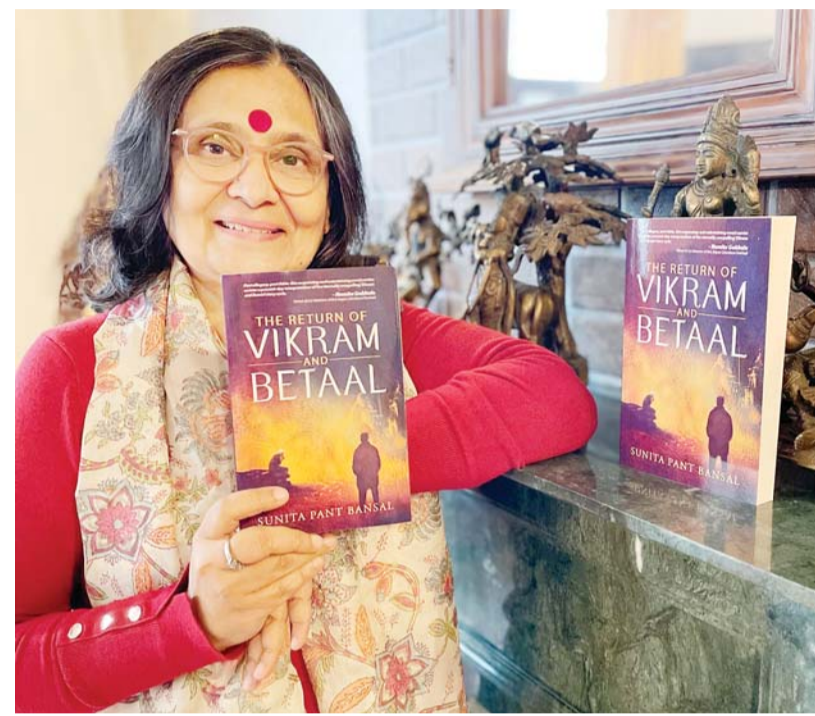
intrigue of the story - and that's what the original book does as well. When I'm writing, I write to communicate my thoughts to people out there. And I know that some would like my writing and some won't, which is normal, as everyone has their own perspective. My way of dealing with things is to invite a dialogue...

**Q. Not everyone would have read or watched the Vikram and Betaal series, here the title might dissuade some people from reading the book whereas the book makes for good standalone read as any. What will you tell readers thinking of it as a literal extension of the former?**  
A. The reason I keep emphasising that the cases I've taken up in the book are real, is because I want the readers to see that my story is not an extension of the original classic but a reflection of those classical characters in today's times. The emotions, the plots, the relationships remain the same through millennia, it's only the presentation that changes - that's what I have done - I have presented the classical characters in a new avatar.



## Snow Sculpting Week

There's something beautiful and compelling about snow and its ability to create a blank canvas of the world. Some people see this as a beauty all its own, while others see that clear space as an opportunity to create something new and ephemeral. Every year Snow Sculpting Week comes along for those who feel the drive to create beautiful and complex works of art out of the temporary medium that is snow. Spring is coming, but that doesn't mean the majesty of winter has to pass quite yet!



**Q. Since the book has its share of legal references, please talk about the research that went into writing the book. Also, what made you zero in on the law profession or the character of a judge only to continue the original concept? Was there any other profession or role also on your mind?**  
A. I spoke to senior advocates and criminal lawyers to understand how the cases are presented for judgment and what goes into judging a case. I went through the legal archives and read hundreds of case summaries. I went through the News archives to look for sensational cases. I read a lot... my research took more time than my actual writing.

**Q. Do you see yourself taking inspiration from other such classic tales of the past and giving it a contemporary twist, like you did with Vikram and Betaal? Also, is there a sequel brewing in your mind for this one?**  
A. Yes, I would love to work on Ramayan set in a corporate scenario, to start with... Actually, any classic tale can be contemporized. As for Vikram and Betaal, if this book is a hit, I would gladly churn out a sequel in 6 months as I have a huge database now.

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Readers took the opportunity to get the author's previous books too, along with the latest one, for her autograph.



because I wanted to show that nothing is just black and white, there are greys in between, and that one person's wrong may be another's right. I also picked up cases from across the country to show that crime is human behaviour and can happen across class, caste, gender, religion, region, and any other man-made boundaries.

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## #J'ADORE

# The Bridal Saga

If you wish to have an exceptional look you need to embrace an Indo-Western lehenga!



As the wedding season is approaching, women are officially on the lookout for something that's different. If you wish to be a trendsetter at the wedding, then you must try on an Indo-Western lehenga as this outfit has the touch of traditional as well as contemporary style.

You may have landed up at all the other pre-wedding events in traditional style, however, for the wedding you need to give that side a rest and wear something different. In addition, if you wish to have an exceptional look you need to embrace an Indo-Western lehenga!

So, girls, what are you waiting for? Say no to the same-old bridal lehengas and go for the Indo-Western lehenga look for any and all wedding functions!

The following are a few great Indo-Western lehenga options that you have got to check out!



#### Colourful Hints

If you wish to wear something that is colourful and want to have a vibrant look, then this might be your perfect pick. If you like experimenting with colours then this multi-layered border with intricate embroidery work is the best Indo-Western lehenga for your needs.

The minimalist approach is soothing to eyes and it will give you the ultimate bridal look.

#### Pastel Lehenga

It is time to glam up your look with a nude pink Indo-Western lehenga. When in doubt, go for this colour as it enhances your feminine side. The intricate embellishments will never disappoint you.



#### Floral Blue

The fashion of a crop top paired with a skirt is trendy and many brides adorn this look for their Mehndi or Sangeet outfit. If you embrace this blue piece, all eyes will be on you at the wedding and the alluring silver designs sported on this Indo-Western lehenga is something that will make you look impressive the minute you enter the venue.

#### Sheer Lehenga

For a ravishing Reception look, this Indo-Western lehenga is amazing. The contrasting floral choli with a heavy gown-like sheer fabric is every girl's favourite choice when it's available. The colour of this garment is the most attractive feature of this Indo-Western lehenga, which makes it a perfect pick for a day time ceremony!



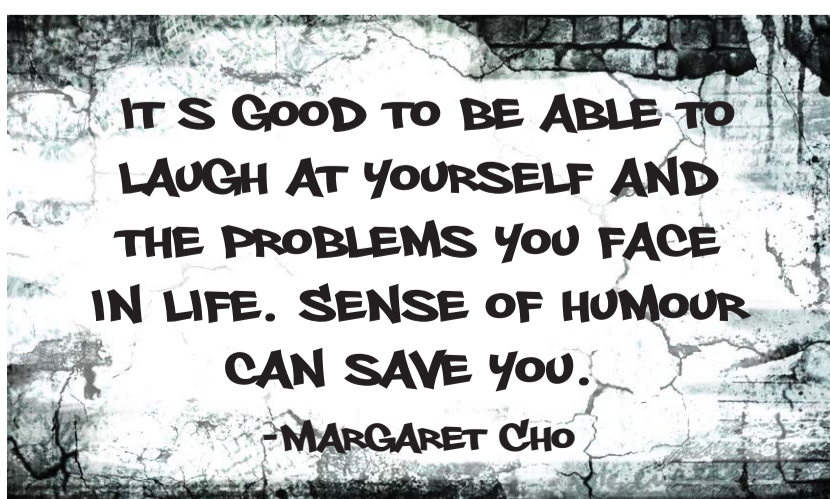
#### Jacket Style

Jacket style Indo-Western lehenga ensembles are super-hot right now and this lehenga come with the latest design for wedding lehengas out there. If you wish to embrace something fresh at the wedding, then this might be one of the best option there for you.

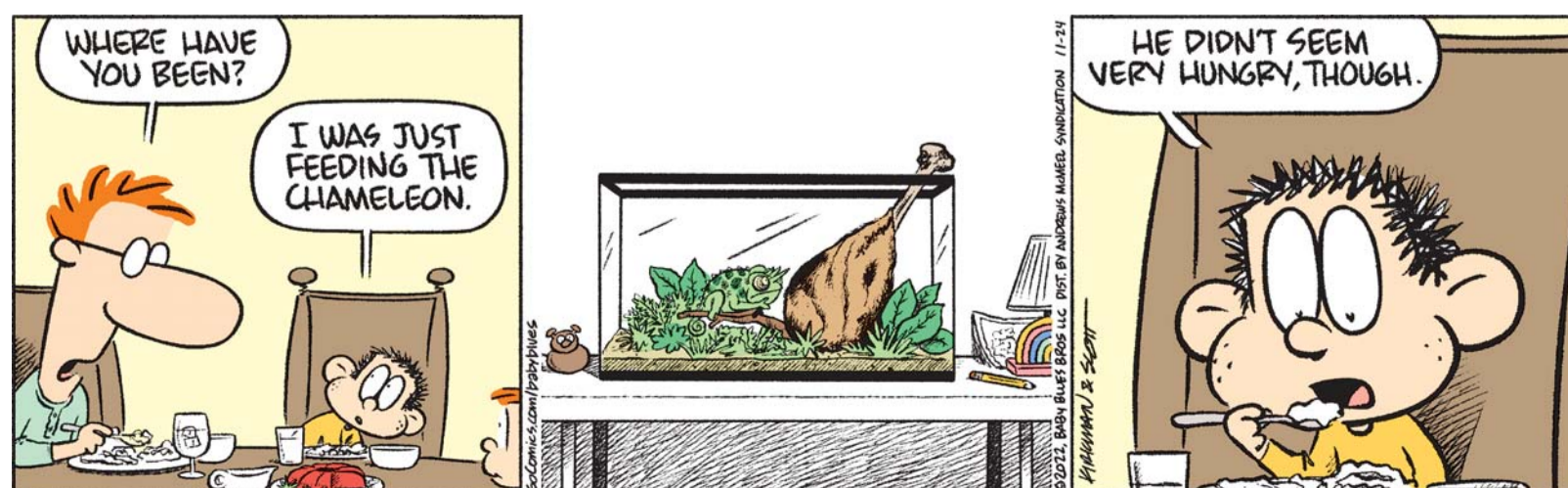
The attractive features of this Indo-Western lehenga make this unique outfit something that you've got to get your hands on!



## THE WALL



## BABY BLUES



By Rick Kirkman & Jerry Scott

## ZITS



By Jerry Scott & Jim Borgman