PLOS Science Wednesday: Hi reddit, my name is Anirban Banerjee and I discovered tiny sacks of toxins may increase the risk of premature delivery in pregnant mice, with implications for preterm birth in humans -- Ask Me Anything!

Hi Reddit,
My name is Anirban Banerjee and I am an Assistant Professor at the Department of Biosciences & Bioengineering, Indian Institute of Technology Bombay, INDIA. I am a microbiologist and my research primarily focuses on the identification of various methods adopted by pathogens to breach different barriers in our body, such as the blood-brain barrier or feto-maternal barrier etc. We hope to learn from the smart tactics employed by these tiny creatures and apply them to deliver drugs across these barriers which are hard to penetrate.

We recently published an article titled "Membrane Vesicles of Group B Streptococcus Disrupt Feto-Maternal Barrier Leading to Preterm Birth" in PLOS Pathogens.

It is a well established fact that colonization of vagina and cervix of pregnant women with Group B Streptococcus (GBS), an opportunistic pathogen, significantly increases the probability of preterm birth. However, in fairly large number of cases the bacteria has not been detected in the feto-maternal interface and/or amniotic fluid. This led us to wonder how GBS sitting in the vagina can orchestrate events at the feto-maternal barrier. We were of the opinion that since rupture of amniotic membrane which is a prerequisite for preterm birth involves a complex series of events; this can only be augmented by a host of bacterial factors and not just simply one. Our findings suggest GBS produces membrane bound vesicles (MVs) that are loaded with multiple toxic proteins and enzymes of the bacteria. These MVs are capable of traveling up through the reproductive tract and lead to a series of deleterious effects resulting in extensive damage of the feto-maternal barrier (amniotic membrane) and subsequently preterm birth.

This work was primarily done by four doctoral students in my lab (Manalee Surve, Anajali Anil, Kshama Kamath and Smita Bhutda) in collaboration with Dr. Deepak Modi, from National Institute for Research in Reproductive Health (NIRRH), Mumbai, INDIA.

I will be answering your questions at 1pm ET -- Ask Me Anything!
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The AMA is still in progress

PLOS Science Wednesday: Hi reddit, my name is Anirban Banerjee and I discovered tiny sacks of toxins may increase the risk of premature delivery in pregnant mice, with implications for preterm birth in humans -- Ask Me Anything! is still ongoing! After the AMA is finished it will be permanently archived, assigned a digital object identifier (DOI), and formatted as a white paper.

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