2020 Beijing Motor Show concept car Roundup

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2020 has not been kind to motor shows. Dhaka Motor show was canceled, SEMA pulled the plug after months of trying, and the organizers of the Geneva motor show are now considering selling their venue. Amid all the woes, the 2020 Beijing Motor Show is a ray of hope for car enthusiasts, which successfully managed to meet its September reschedule. We bring you a list concept cars from the show that managed to catch our attention.

Great Wall Ora Futurist Concept

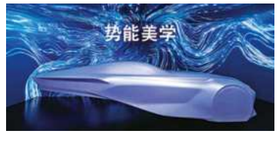
Ever wanted one of those quirky and adorable Trabant, but backed away due to their awfulness? Well, then Great Wall just might have made the car for you. The Futurist concept is a retro electric luxury sedan made under the Ora marque. The interior of the car strongly resembles a 50's US land yachts while the exterior looks like a modernized take of a compact car from the Soviet bloc. Chinese sources claim the car is designed by ex-Land Rover Phil Simmons and is based on the company's new "Lemon" platform. Great Wall claims the car is "near production ready" but remains quiet about whether they will actually put it into production.

Neta Eureka 03 Concept

Eureka Model 3 Nete's answer to the Tesla Model. The exterior of the car looks like a tasteful update of the Lincoln design from mid-2010, while the interior is left to speculation because Neta left all the windows blacked out. Lack of dashboard pictures notwithstanding, the Eureka 03 is one of the few cars that actually gave out some hard numbers. The has an NEDC rated 800 KM range and can reach 0-100 in 4 seconds. The company also confirmed they are putting the concept into production and it will hit the market somewhere around 2022

Honorable mention: Ford "Future Design" sculpture

We are giving this a special mention as unlike all the other entries on this list, this one isn't a car. What it is a sculpture from Ford, depicting a vehicle profile. The sculpture feature a front end with a massive grill, with its long hood flowing to a sleep racecar cockpit-like passenger compartment. The rear tapers into a teardrop shape, giving the overall design a flowing fin-like aesthetic. Ford claims the sculpture is a preview of their future design language, which will bring a "Progressive Energy in Strength" look into future cars. Guess we now know massive front grilles aren't going away anytime soon.



Honda SUV e:concept

Moving from Chinese brands to a familiar nameplate, we have the Honda SUV e:concept. The Japanese automakers claim the car "indicates the direction of a future mass-production model.", and will be their first EV in the Chinese market. The design of the car is nothing special, resembling a minimalist version of Honda's current design language. What's is special about the car is its omnidirectional advanced driver-assistive systems, which feature improved recognition, prediction, and decision-making performance. Oh, and for those who are excited about 3 door SUV, Chinese sources indicate the production version of the car will be a 5 door. Which is depressingly typical of modern Honda.

Qoros Milestone Concept

Either the designer of this car has no chill, or they are huge Cyberpunk fans. The Qoros Milestone is an edgy design, featuring motion-controlled sliding doors, crazy wheels, and lights that illuminate all four corners of both ends. The interior is taken straight from an early 2000 science fiction video game, complete with a detachable steering wheel remote control and a holographic interface that covers the entire windshield. Technical information about the vehicles is hard to find, but Chinese media claims Qoros developed the concept to "accommodate a range-extending powertrain", meaning we at least know it's a hybrid.

Pioneering cutting edge cancer research from Bangladesh

In conversation with Dr Sajib Chakraborty of the Department of Biochemistry and Molecular Biology, University of Dhaka.

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Dr Sajib Chakraborty, a computational biologist at the University of Dhaka has been working with his colleagues at the University of Freiburg to find out new horizons in the treatment of cancer, which in reality remains one of humanity's gravest illnesses.

Toggle sat down with Dr Sajib this week to talk about his research and more.

T: What is the current stage of cancer research in Bangladesh?

Dr Sajib: The survival rate of cancer patients, especially for childhood cancer, is much lower in the low/middle-income countries such as Bangladesh, compared to developed countries. The reason is multifaceted--lack of molecular diagnosis, limited access to effective cancer drugs, affordability, to name among few.

We are lacking far behind in identifying the molecular causes of cancer in Bangladesh, where the developed countries have achieved tremendous success and generated a wealth of molecular data from cancer patients which are proving to be crucial not only in untangling the complexities of cancer but also in determining the effective drugs for cancer patients.

T: How effective is gene therapy in the fight against cancer?

Dr Sajib: Genes, RNAs, and proteins are like three pillars of any cellular functions. Cancer initiation depends on the multiple genetic mutations but the effects of these mutations are far-reaching and can modify a great number of RNAs and proteins without causing a direct mutation in their respective genes.

Therefore, by analysing genes we can only understand what genetic mutations caused the cancer initiation in the first place but if we want to understand how cancer evolves over time and becomes metastatic we need to focus on RNAs and proteins as well. Proteins are particularly important in the fight against cancer because they can directly serve as biomarkers and targets for anti-cancer drugs.

T: How successful have cancer drugs been so far in mitigating the spread of cancer in general?

Dr Sajib: The success of anti-cancer drugs broadly depends on the clinical stages of cancer. If we can detect cancer in the early stage, a combination of surgery or radiotherapy with anti-cancer drugs can have a powerful effect to combat and destroy the cancer cells.

However, the same drug can become less effective when administered in the advanced or late stage of cancer. Physicians rely on a trial and error basis when it comes to administering anti-cancer drugs. All these factors boil down to the major challenge in cancer treatment.

However, we are now beginning to understand why this might happen and what changes from early to late stages of cancer. We now know that as the cancer progresses, it acquires a variety of different genetic mutations that contributes to the alteration of a large number of RNAs and proteins making it immune to the body's natural defense system as well as certain anti-cancer drugs.

These acquisitions of mutations over time modify a number of molecular pathways in the cancer cells so that it becomes resistant to anti-cancer drugs. Molecular pathways are like a network of proteins that act in concert to achieve a certain biological function.

So far we have generated evidence suggesting that different molecular pathways are switched on and off depending on the stage of cancer. Therefore we need to administer specific drugs that can inhibit those pathways at a particular stage of cancer.

In essence, we are proposing stage-dependent anti-cancer therapy. For instance, 5-fluorouracil (5FU) is an anti-cancer drug that is normally administered to colon cancer patients.

We now have preliminary data that supports the theory that molecular pathways that confer resistance to 5FU are switched on in the late stages of cancer.

T: What are the other exciting findings from the world of cancer research?

Dr Sajib: Experimental scientists and clinicians worldwide are generating a massive amount of molecular (DNA, RNA, and protein) data from a huge number of cancer patients with the aim to better understand the intricate mechanisms of cancer.

In this endeavor, the computational biologists are playing a pivotal role in analyzing the huge amount of data in a biologically meaningful manner. For instance, by developing a mathematical algorithm, Dr. Andrea Califano at Columbia University, USA and his team identified the molecular pathway that is responsible for developing resistance against the drug trastuzumab (Herceptin) in breast cancer patients.

The algorithm also predicted that blocking the pathway with another drug ruxolitinib may overcome the resistance. The combination therapy consisting of these two drugs (trastuzumab + ruxolitinib) is now under phase II clinical trial.

Another exciting area of cancer research is immunotherapy which acts by augmenting the body's immune response against cancer cells.

However, the challenge of immunotherapy is that all the patients receiving immunotherapy do not respond in the same way. Nearly half of the patients remain unresponsive to immunotherapy. Recently, Prof. Matthias Mann at Max Planck Institute of Biochemistry, Germany and his team identified a pathway that is associated with higher immunotherapy response in skin cancer patients.

My team in collaboration with the University of Freiburg, Germany is also working on identifying such molecular pathways that can alter the response to a particular anti-cancer drug.

So far, what we saw was that these molecular pathways are not static rather show dynamic behavior over time. The pathways become switched on and off with the different cancer stages. Therefore drug targeting a particular pathway may become ineffective over time when the pathway is switched off.

Overall, aided by computational and mathematical models, cancer research is heading in the right direction, and in near future, we may see the fruitful outcome which may lead to early diagnosis and effective therapy development for cancer.

T: What are its technological barriers?

Dr Sajib: In Bangladesh, molecular testing is not widely available and it costs a significant amount which raises the question of affordability.

However, I believe with the advancement of technology, these testing will become pervasive at the same time cheaper.

The second challenge is the skilled manpower that is required to perform widespread molecular testing. This certainly is achievable as we have seen for Covid-19 molecular testing in Bangladesh.

Graduate students with a background in Biochemistry, Molecular Biology, Microbiology and Biotechnology can certainly meet the requirement of skilled manpower to perform widespread molecular testing for cancer.

Finally, the clinicians should work closely with scientists to facilitate the molecular diagnosis of cancer patients.

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