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INTERVIEW WITH PROFESSOR MIROSLAV RADMAN, PARIS UNIVERSITY V, PARIS - BROADCAST NOVEMBER 4TH 2008

COMMENTARY

In the second half of the 20th century, science gave industry a new raw material - the codes of life itself.

The ability to manipulate living material puts enormous resources into our hands, even the power to create new forms of life.

But genetics inspires both hope and controversy.

Professor Miroslav Radman works at the frontier of the new science of medical biotechnology.

A Croatian living in France, Euronews met him at his laboratory in Paris.

INTERVIEWER

"What are you working on at the moment?"

PROFESSOR MIROSLAV RADMAN

"I'm now involved in the study, trying to understand how life is maintained. Why some species live a few weeks and some live a hundred years. Why some cells will divide for ever in a petrie dish and why some others divide a few times and collapse. How life itself is maintained, and we are doing that by studying some curious, rare creatures of nature, some kind of freaks of robustness, of resistance. They are a bacterium caled deinococcus radiodurans. They can truly resurrect back to life and I would like to know what is the molecular, biological basis of their incredible robustness beause I would like to become robust myself before I die."

INTERVIEWER

"Do you think this is a possibility?"

PROFESSOR MIROSLAV RADMAN

"This is not only a possibility, this is now our project. And I believe that in a few years, a year or two only, we will know how these extremely robust creatures protect their life machinery from falling apart and we are now measuring the relevant event. It will be like a car that has built in a network and smart engineer that is present everywhere and fixes small damages as they happen. Then you will have a Rolls Royce that will last for many centuries."

INTERVIEWER

"Or a 90-year-old tennis player."

PROFESSOR MIROSLAV RADMAN

"Exactly"

INTERVIEWER

"And this is a real possibility?"

PROFESSOR MIROSLAV RADMAN

"It is absolutely a possibility. This is not a dream. We measure this damage and quantify how much damage to the cellular machinery has been done and we see that

these robust freaks are protected even when irradiated with hundreds of thousands of rads while normal species are damaged, oxidised and dead. So we think we ca put the finger on the chemistry of maintenance of life...and use it. Mabe every morning drink some of it."

INTERVIEWER

"There's a lot of controversy about genetic research. I'm talking about stem cell research, I'm talking about genetically modified crops which causes a lot of concern and confusion in the community. Are we right to be concerned do you think?"

PROFESSOR MIROSLAV RADMAN

"It's wise to be concerned and its dangerous to be hysterical about innovation and new knowledge. I think somebody should be asking at the level of ethics, bioethics, medical ethics, somebody should be there asking the question: who will be responsible for us not doing something that will improve the quality of life of our children?

INTERVIEWER

"We also need to be bold."

PROFESSOR MIROSLAV RADMAN

"We need to be bold."

INTERVIEWER

"Turning now to some of the challenges we face this century - we've got a few problems. We have rapid climate change caused by excessive carbon dioxide emissions, we have increasing population, we have droughts - can biotechnology offer any solutions for this?"

PROFESSOR MIROSLAV RADMAN

"Sincerely, I think 'yes'. The resources are there - huge numbers of genes closed in the boxes of species. Now we have the knowledge we can become egotistic, we can be very egotistic. Every species is egotistic, and this is true of our species. There's an immense challenge in doing evolutionary biotechnology which would be symbiosis engineering. Why not symbiotically associate in the same organism photosynthesis that uses just sunlight and water and CO2 in order to make sugars. Plants are doing this, algae are doing this - and associate this with something that yeast is doing and that is fermentation. Such that, sugars that are made this way, in a very ecological way, are fermented into ethanol or butanol - and use them directly as a source of energy. You need only sunlight. We can provide this genetically engineered symbiont to poor people in Africa - there's plenty of sunlight - and they could have independent energy. All of these are fantastic challenges, but this is an example. What I really want to say is evolutionary biotechnology, making our home-made evolution for our own purpose, just as it was made in Nature for natural evolution - there's nothing wrong in doing that because that's the way we could solve many of the problems."