White Biotechnology
Tarrytown, NY, USA

White biotechnology – also known as industrial biotechnology – uses microorganisms and enzymes to produce chemical and biochemical products. Often, using new biotechnological methods and processes allows us to manufacture these products more efficiently and with lower resource consumption than with conventional processes.

In nature there are many things which appear to be the same, but which behave like an image or mirror image of each other – for example the left and right hands. The same phenomenon also applies on a small scale at the molecular level. Two molecules which are mutually chiral have identical physical properties, but in most cases different biological effects.

(01) Research Center - Biocatalysis – Tarrytown, NY, USA

In the research laboratory for white biotechnology and microbiology in Tarrytown, New York, scientists develop efficient biotechnological production processes and work on antimicrobial products for the medical technology, hygiene and health sectors.

In biocatalysis a single enzyme is used to catalyze a specific reaction step. The enzymes employed generally originate from microorganisms. One of the ways that BASF uses biocatalysis is for the production of so-called chiral intermediates, which are required for the production of pharmaceuticals and plant protection products.
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In fermentation, living microorganisms such as fungi and bacteria transform raw materials into the desired products. In yogurt production, for example, lactic acid bacteria convert lactose to produce lactic acid. Fermentative processes can be used to produce substances like vitamins and enzymes, with reduced resource consumption and in adequate quantities.
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BASF scientists are part of cooperative networks with 900 universities, institutions and companies around the world, including the BASF Advanced Research Initiative at Harvard University, an innovative model for university-industry collaboration.

(04) Markus Pompejus – Vice President White Biotechnology Research

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White biotech is a technology, it's not a product. So white biotechnology is one way to produce chemicals in – if you want – a sustainable way. So there are typical products you can only produce using white biotech. There are other products you can produce much better using white biotech. So it's important for us to decide and to analyze what is the best method to produce a certain chemical or to deliver a certain solution. And very often, and more and more, it is that white biotech is the solution for these problems.

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White biotech is all about production of chemicals based on renewable raw materials. We do that for example using yeasts. So things like this little thing here: you have here yeasts and other microorganisms. They produce these chemicals and another aspect is using enzymes. So enzymes to run chemical reactions but also enzymes do that in your personal life. So for example if you go to your washing machine in the washing powders you have
detergents and you have enzymes to make sure that the laundry gets clean. So white biotech is around us all the time and everywhere.

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We want to offer solutions for various industries. So this range is from nutrition to health, to personal care which is things like cosmetics, it goes to hygiene, to home care, but even to oil fields. So we are currently working on these areas to serve our BASF customers internal, but also the external customers.

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As for all other research areas the key factor is the team. So another ground here is having here a big team of talented people, highly motivated people, working here and we are collaborating very closely with all the other BASF research sites in North America, but across the globe and all this interaction really make the big difference. So it's all about the team.

(05) Allison Guinta – Biotechnology Scientist
10/29/2013; 00:37; A1/A2: Direct Sound; FullHD

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I think there is a bright future for a white biotechnology. I think that it's a way to really make things more sustainable. I think that it's a way to really capture value for our company and I think that it's a way to really bring
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everyone together. So if we can create something in a bio based way that we can make it a more sustainable process and actually impacts the world in a positive way from it.