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Technologies

version for the press

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Nikita Maximov

Burn into the vein

I do not know, is gladdened Hollywood actress meg Ryan this news - but in the honor of its heroine of Lydias from the fantastic film "internal space" (about the journey inside the man) scientists named experimental pig. They named posthumous - after sensational experiences in the Canadian laboratory the pig was umershchvlena. So it is shrewd into the nonexistence by obscure martyr in the good of science, if we not Newsweek, into the joke proposed to scientists recall about film sensational in its time. "thanks for the idea! Lydia - excellent name, which very to us approaches ", was gladdened professor sil'van Martel' from the polytechnic school of Montreal. Indeed pig Lydia is not less than the lamb of dollies, it deserves monument in itself on the native land.

"if you live up to 2010, biology and technological discoveries will help you to lengthen to 2810- GO", joked 5 years ago known forecaster rey Kurtsveyl. Now it recognizes that in its words there was only the portion of joke. But it is here 1987- m, when left "internal space" with Dennis kueyd and meg Ryan, this seemed that perfected by fantasy - there pilot sat down himself into something more similar to the bathyscaph, they decreased it to the microscopic sizes and they sent into the journey on the organism. In woman journalist Lydia the apparatus, by the way, fell with the hot kiss. Film reflected the dreams of scientists about the medical nano-robot - the tiny apparatus, capable tselenapravlenno of being moved in the human organism and of treating him. Dream became the reality of exactly twenty years later - last week sylvan - -methylfuran Of martel' for the first time could move the prototype of nano-robot in the artery of Lydias. Of course apparatus was "pilotless", but scientists could it govern in the "automatic regime".

Numerous prototypes of nano-robots were built in recent years, but not one scientific group could reach testing of its models even on animals. And here Canadian scientists proposed the procedure, which will make it possible to start inside the man of device, moreover using the already existing medical technology, which must be simply reprogrammed. "robot itself" thus far is the tiny metallic disk with a diameter of 1,5 mm and with a weight of 0,0136 g. in order to govern its displacements, specialists decided to use a magnetic field of the tomograph, which stands in each large medical center. This instrument is capable to create the three-dimensional pictures of the tissues of man with the aid of one larger magnet and three coils of smaller size. Changing the tension of magnetic field in the different directions, scientific earlier we could see cells at the different depth, and now with the aid of the computer program we could turn robot inside the arteries of animal.

"under the anesthesia we introduced catheter with the disk into the artery on the nose wheel strut of pig and could bring it to the carotid artery on the neck, entire way composed about 20 cm", says Martel'. On the roller, which was removed scientists in the course of experiment, very process of the movement of disk resembles the twitchings of the cursor of the long ago not cleaned computer mouse. According to the researchers, it turned out that in the reality the pressure of the blood in the artery strongly is differed from simulation experiments. But gradually with it it was possible to manage and the speed in 10 cm per second (0,36 km/h) to pass along the straight line and even to be entered in the turning of artery. If this speed it is insufficient, it will be possible to increase it, after placing additional magnets on the tomograph.

"no one, until now, it was impossible so to reconstruct control system of magnets in order to govern metallic object, on top of that inside animal", says specialist in the computer laminography of New York university Aleksey Ershov. Competitors also in the admiration. "major issue with the production of all nano-robots is the selection of the principle of their motion, is explained James frend from the Australian university Of monash. - it is necessary, from one side, to work on very small scales, with another - to manage the opposition of the flow of the blood ". Frend itself selected for its device, which will be equipped by camera and system of the ejection of medicines, engine on the piezoelectric crystal. However, the obeshchannyy prototype so not was built. "technical complexities", it separates by the hands Of frend.

One additional unsuccessful project was neglected at the university Carnegie- mellon in Pennsylvania. In order to move nano-robots, scientists proposed to use bacteria S marcescens. To them caught the molecules of polystyrene with the opposite charges, which moved entire construction forward. But to robot speed did not be sufficient for overcoming the flow of the blood. To stop micro-apparatus is possible moreover, having only added into the blood the solution of copper sulfate.

To the work of Canadian scientists their associates of other countries thus far have only one observation - too great dimensions of disk. "such robot it is not possible to penetrate in the thin blood vessels of brain, notes James frend, they too narrow". Martel' recognizes that now its group cannot govern the devices of smaller sizes because of the limitations of the power of tomograph, but it recalls that this power constantly grows (for the latter several years it it increased more than twice), and therefore the time of the present robots of nanos-size, capable of penetrating the most hidden corners of the human organism, at hand.

But scientists are not intended to await so for long. Martel' considers that a deficiency in its disk can be used, also, into the good to patient. "by this large robot we can move away dust devils in the arteries of man and pulverize the large dose of medicines", says scientist. Canadians intend to inject their device in practical medicine with the aid of the venture company Gestion Univalor, created with The monreal'skeye university. Market for one only the "cleaning of dust devils" in THE USA - about 3 million people. "since in practice no additional investments to make not necessary and it is possible to use the already existing tomographs, we plan output to the market into the next five years", says one of the top managers Gestion Univalor of Didier Lecomte. For the present Canadians continue to experiment on animals. The following experimental - monkey, which as yet does not have name.

Nikita Maximov

to discuss on the forum

Thievish portals

"thievish portals" - THE FBI recognized last year as record according to the number of thefts through the Internet. The sum total of the money - $198,4 stolen in the network by million, on $5100 to each victim - exceeded all records in those six years, that THE FBI lets out its annual report...

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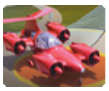
iPont

"iPont" - this is oecumenical gadjet- breakthrough - iPhone. Aleksandr rotkin only partly joins in singing to the chorus of those glorifying the creation of corporation Apple, and he further starts its song of the doubts: this today napichkannost' "are everything in one" and "entire better" it approaches by almost all. But by nepredstavim user, who evenly uses a camera, telephone, computer and iPod, and all these machines separately will continue to be developed, and then crisis inevitably threatens to super-universal model.

Its excellent nano-

At the end of May Joint Institute for Nuclear Research (J.I.N.R.) in Dubna prezentoval future of Russian science. This is super-effective photo cell with the almost 50-percent EFFICIENCY, which can manufacture electricity even at night...



It is higher than the plugs

Earlier it frightened by its roar of local residents, but they had time to become accustomed in the years to it - indeed fantastic things cease to strike, if you see their each day. "skaykar" of company Moller not only drives, but also flies...

the archive