

## CHIRON VACCINES REPORTS DATA IN SCIENCE ON NEW UNIVERSAL GROUP B STREPTOCOCCUS VACCINE RESEARCH

### - GBS Is Leading Cause of Life-Threatening Infection in Newborns -

**Oxford, UK, 1 July, 2005** — Today scientists at Chiron Vaccines, part of California-based Chiron Corporation (NASDAQ: CHIR), reported in the prestigious journal *Science* breakthrough results in the search for a universal Group B *Streptococcus* (GBS) vaccine<sup>1</sup>. Using a novel genomic screening technique called 'reverse vaccinology', the Chiron Vaccines' team, in collaboration with researchers from Harvard Medical School, the US Institute for Genome Research and the University of Messina Medical School in Italy, identified a number of proteins that in combination offer the prospect of a vaccine that can protect against all the major circulating strains of the bacteria. During their research, the team also identified for the first time the existence of pili (hair-like structures) on the surface of the bacteria, which have previously gone unrecognised despite decades of research into GBS. The Chiron Vaccines' team have reported on this groundbreaking discovery in today's edition of *Science*<sup>2</sup>.

The GBS bacterium is the leading cause of life-threatening bacterial infection in newborns. A number of strains of the pathogen circulate in the community, and approximately 80% of cases of newborn infection are acquired during birth by direct mother-to-baby transmission. Research shows that GBS colonizes the anogenital mucosa of 25-40% of healthy women, and despite the introduction of antibiotic prophylaxis in the US, GBS still causes approximately 2500 cases of newborn infections per year. Of those infected 25% result in serious long-term consequences such as deafness, blindness and neurological damage, while 100 babies die in the first three months of life as a result of the infection. Approximately half of these deaths occur in the first week after birth, and consequently scientists believe that the introduction of effective vaccination is the only way to further reduce the number of cases of this life-threatening infection in the long term.

"This exciting research is a real demonstration of the genomic revolution translating into important new healthcare products," said **Rino Rappuoli**, Chiron's Chief Scientific Officer and Head of Research at Chiron Vaccines. "By carefully examining the functional genome of the GBS bacteria we have identified several important proteins that when combined as a vaccine have the potential to protect against all of the key strains. This contrasts sharply with classical development techniques, where target pathogens are painstakingly grown and different components purified to produce candidate vaccines. By using our innovative 'reverse vaccinology' approach we have significantly sped up the vaccine discovery process, identified a potential universal GBS vaccine, and by discovering pili structures on the bacteria further advanced our scientific knowledge in the field."

"Due to the large number of circulating strains of GBS, researchers have not previously been able to identify a single component vaccine to offer broad universal protection against the disease. However, by screening the genome of a number of GBS strains Chiron Vaccines' scientists have discovered four proteins each of which protects against overlapping populations of the bacteria. In combination, the vaccine provided broad protection in preclinical models that are acknowledged as predictive of the response in humans. Therefore, while it remains early days in the development process, our innovative genomic screening technique offers the prospect of new universal protein-based vaccines against not only GBS, but also other bacteria that exist as variable strains, such as Group A *Streptococcus* and *Streptococcus pneumoniae*."

To obtain copies of the papers referenced below, please contact *Science* at +1 202 326 6440 or [scipak@aaas.org](mailto:scipak@aaas.org).

<sup>1</sup> Identification of a Universal Group B *Streptococcus* Vaccine by Multiple Genome Screen. D Maione, Margarit I, Rinaudo D *et al.* *Science* (July 1, 2005). Lead author Guido Grandi, Chiron Vaccines Italy.

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<sup>2</sup> Genome Analysis Reveals Pili in Group B *Streptococcus*. Lauer P, Rinaudo D, Ros I *et al.* Science (July 1, 2005). Lead author John Telford, Chiron Vaccines Italy.

### **About Chiron**

Chiron delivers innovative and valuable products to protect human health by advancing pioneering science across the landscape of biotechnology. The company works to deliver on the limitless promise of science and make a positive difference in people's lives. For more information, please visit [www.chiron.com](http://www.chiron.com).

### **About Chiron Vaccines**

Chiron Vaccines, the world's fifth-largest vaccines business, is headquartered in Oxford, United Kingdom, and has facilities located throughout Europe, the United States and Asia. In addition to influenza vaccines, Chiron Vaccines has important meningitis, pediatric and travel vaccine franchises. Chiron Vaccines is a leading vaccine manufacturer in the United Kingdom, Germany and Italy. The company's portfolio of products includes vaccines for influenza, meningitis C, rabies, tick-borne encephalitis, yellow fever, haemophilus influenzae B (Hib), polio, mumps, measles and rubella (MMR) and diphtheria, tetanus and pertussis (whooping cough).

### **For further information**

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*This news release contains forward-looking statements, including statements regarding research and development, product development initiatives, new product indications, new product marketing, and clinical trials that involve risks and uncertainties and are subject to change. Forward-looking statements often address Chiron's expected future performance, and often contain words such as "expects," "anticipates," "intends," "plans," "believes," "seeks," or "will." A discussion of the company's operations and financial condition, including factors that may affect its business and future prospects that could cause actual results and developments to differ materially from those expressed or implied by forward-looking statements, is contained in documents the company has filed with the SEC, including the Form 10-K for the year ended December 31, 2004, and the Form 10-Q for the quarter ended March 31, 2005, and will be contained in all subsequent periodic filings made with the SEC. These documents identify important factors that could cause the company's actual performance to differ from current expectations, including, among others, the outcome of clinical trials, regulatory review and approvals, manufacturing capabilities, intellectual property protections and defenses, litigation, stock-price and interest-rate volatility, marketing effectiveness. Drug development involves a high degree of risk. For example, Chiron's development programs could be negatively affected if unexpected concerns arise from additional data, if regulatory authorities require additional information or further studies, or if the company were to encounter other unexpected hurdles. In addition, the company may engage in business opportunities, the successful completion of which is subject to certain risks, including approval by Novartis AG, regulatory approvals, and the integration of operations.*

*Chiron does not undertake an obligation to update the forward-looking information the company is giving today.*