

Media release

Nobel Biocare Symposia 2012

ZURICH, SWITZERLAND – 17 APRIL 2012

P-I Brånemark celebrates the dual anniversaries of osseointegration with Nobel Biocare

Professor Per-Ingvar Brånemark made a surprise entrance on March 22 at the first Nobel Biocare scientific symposium of 2012 in Gothenburg, Sweden. The grandfather of implantology joined a long list of his fellow dental implant pioneers to celebrate the dual anniversaries of osseointegration – 60 years since the discovery and 30 years since international acceptance. While his dramatic entry to the symposium was largely unexpected, his presence was warmly welcomed, as the celebration taking place wouldn't have been the same without him.

Sixty years have now passed since Professor Brånemark's remarkable discovery that titanium could integrate with bone. He called it "osseointegration" and it changed dentistry forever, improving the lives of millions of people around the world in the years to follow. His arrival at the Gothenburg symposium prompted a standing ovation, but for Brånemark and his supporters it was only an encore call compared to the one they received at the Toronto conference in 1982 after a 30-year fight for acceptance.

The programs of all six Nobel Biocare Symposia 2012 taking place in Sweden, Canada, and also France, Ukraine, Germany and Italy will celebrate the origins and evolution of osseointegration as a practical and trusted treatment modality over the last six decades. Beginning the series in Gothenburg, Chairman of the Scientific Committee, Professor Ulf Lekholm, reminded participants of how far Professor Brånemark, Nobel Biocare and their band of supporters have brought dental innovations based on the principles of osseointegration since those days of breakthrough 60 and 30 years ago.

Professor Lekholm explained that the fight for acceptance began in 1952 when Brånemark first discovered the principles of osseointegration during an experiment where a small titanium-encased microscope lens was placed in a rabbit fibula to study bone regeneration and microcirculation *in vivo*. Attempts to remove the apparatus proved futile as the titanium had attached to the bone. Realizing the potential of his findings, Brånemark turned his efforts toward dentistry and by 1965 the first patient, Gösta Larsson, had received dental implants.

Bofors, a corporate antecedent to Nobelpharma and Nobel Biocare, produced Brånemark's early implants. The rest is well-documented scientific history, with over 1200 published osseointegration-based studies and 110 PhD theses presented to date. However, the story of acceptance is a little longer, 30 years to be exact. It turns out it was much harder for minds to accept a new concept than it was for bone to integrate with titanium.

Rebels with a cause

Being on the crest of a growing wave of medical and surgical breakthrough wasn't as smooth a ride as you would have expected. When Professor Ragnar Adell, who was a research associate in Professor Brånemark's department from 1967-1974, took the stage in Gothenburg he explained that between the 1950s and 1970s the only outcomes on record for placing metal in bone were not favorable. It had been widely thought and accepted that any metal object placed in bone would not integrate but instead develop a fibrous tissue between the appliance and bone. This fibrous tissue lacked stability and was prone to bacterial infection. Naturally, it was difficult to convince the world that titanium was different, possessing unique properties that are still not fully understood, which allow it to integrate with bone.

Professor Brånemark and his team began facing a hostile environment of disbelief in 1969 in Landskrona at the Southern Swedish Dental Association with comments like, "You are a humbug sir – not even a dentist!" According to Professor Ragnar Adell, the harsh reactions to Brånemark's findings continued into 1975 where the group was rejected by almost the entire Swedish scientific community. Professor Adell reminisced about a stern finger being waved in his face followed by the dismal suggestion, "You should be expelled!"

It wasn't long, however, before the tide began to turn. Within a few months of the criticism in Sweden, the health insurance system requested that the Swedish National Health and Welfare Board do a study on the subject of osseointegration. Twenty randomly selected patients were subsequently examined along with the 10 years of meticulously recorded follow-up data produced by Brånemark and his team. The results of the study were indisputable and finally led to Swedish approval. This was the beginning of the long-term credibility that osseointegration enjoys today both in dentistry and beyond according to Professor Adell. "It is an extremely well-documented biological principle for anchorage anywhere in the human skeleton."

A victorious revolution

The battle in Sweden was won, but the war was far from over. Victory in Sweden, and Europe for that matter, was not enough, osseointegration needed to be accepted globally. Around the time of Swedish acceptance, Professor George Zarb from Toronto, Canada read Professor Brånemark's 10-year follow-up data and also saw the potential of this new development in dental implants. In 1977 he visited Professor Brånemark in Sweden and studied osseointegration for one year. He started the "Republication Study of Osseointegration" in Toronto and published the results in 1979, thus becoming the first researcher outside of Sweden to replicate and verify the results of the Brånemark team.

In May of 1982 Professor Zarb played a pivotal role in furthering the spread of osseointegration. He organized the landmark "Toronto Osseointegration Conference in Clinical Dentistry" which introduced osseointegration to North America, initiating international acceptance. The conference brought the breakthrough treatment modality to the swift attention of academic communities and thus the general public.

"Professor Brånemark bridged the gap from mechanics to biology," explained Professor Zarb, who also made the trip to speak at the Gothenburg symposium. He referred to the time period before Brånemark as "B.B." Professor Zarb who will lead the Nobel Biocare symposium in Toronto as the Chairman of the Scientific Committee, went on to say that before Brånemark there were so many patients who had succumbed to scientific failure but now with osseointegration there is a versatile application for the reduction of bone loss that can truly enrich a patient's life.

When asked about his reaction after osseointegration was finally accepted internationally, Professor Zarb explained the feeling in one word, "Triumphant!" He further explained that it wasn't just a victory for the supporters but a victory for dentistry which enriched the entire community. "It was a giant leap of science ... we've come a long way."

Scientific symposia unlike any other

An estimated 1000 attendees descended upon the hometown of osseointegration – Brånemark's Gothenburg – from March 21-23 to celebrate the two anniversaries of osseointegration. The Nobel Biocare Symposia 2012 continue on the road from Sweden to Toronto, with stops along the way in France, Ukraine, Germany and Italy. From all over the world, many more participants are expected to make the pilgrimage to these symposia during the current year. As they do so they will be paying tribute to the discovery that astonished the dental community and sparked new treatment opportunities in such disparate fields as dentistry and orthopedics.

60 years of osseointegration – 30 years since the landmark conference in Toronto

In 1952, Professor Per-Ingvar Brånemark discovered the principles of osseointegration in Sweden. Thirty years later, in 1982, the discovery was acknowledged, and his subsequent findings confirmed, at an epoch-making meeting of dental authorities organized by Professor George Zarb in Toronto, Canada. The proceedings of this historic conference enabled dental implants to gain acceptance as a treatment method in the global dental community. In acknowledgement, this year we revisit Toronto on the last stop of Nobel Biocare Symposia 2012.

Nobel Biocare Symposia 2012 schedule

- Gothenburg, 21-23 March
- Avignon, 1-2 June
- Odessa, 9-11 June
- Hamburg, 15-16 June
- Rimini, 19-20 October
- Toronto, 19-20 October

For more information, or to register online, please visit

<http://www.nobelbiocare.com/symposia2012>

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Further information is available from:

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Figure 1:
Professor Per-Ingvar Brånemark greets colleagues and supporters during a break at the Nobel Biocare Gothenburg symposium.



Figure 2:
Professor George Zarb speaking on stage during the Nobel Biocare Gothenburg symposium.



Figure 3:
Professor Ulf Lekholm speaking on stage during the Nobel Biocare Gothenburg symposium.



Figure 4:
Professor Ragnar Adell speaking on stage during the Nobel Biocare Gothenburg symposium.

