

55 Cal.4th 747 (2012)

149 Cal.Rptr.3d 614

288 P.3d 1237

SARGON ENTERPRISES, INC., Plaintiff and Appellant,
v.
UNIVERSITY OF SOUTHERN CALIFORNIA et al., Defendants and Appellants.

No. S191550.

Supreme Court of California.

November 26, 2012.

752 *752 Browne George Ross, Brown Woods George, Allan Browne, Eric M. George, Benjamin D. Scheibe, Ira Bibbero; Glaser Weil Fink Jacobs Howard Avchen & Shapiro, Patricia L. Glaser, Elizabeth G. Chilton and Andrew Baum for Plaintiff and Appellant.

Quinn Emmanuel Urquhart & Sullivan, Quinn Emmanuel Urquhart Oliver & Hedges, Kathleen M. Sullivan, Daniel H. Bromberg, John B. Quinn, Michael E. Williams and Michael T. Lifrak for Defendants and Appellants.

Cole Pedroza, Curtis A. Cole and Cassidy E. Cole for California Medical Association, California Hospital Association and California Dental Association as Amici Curiae on behalf of Defendants and Appellants.

753 Daniel J. Popeo, Richard A. Samp; Bergeson and Mark E. Foster for Washington Legal Foundation and Allied Educational Foundation as Amici Curiae on behalf of Defendants and Appellants. *753 Mayer Brown and Donald M. Falk for Actelion Pharmaceuticals U.S. as Amicus Curiae on behalf of Defendants and Appellants.

Ada Meloy; Hogan Lovells US, Michael Shepard, Martin Michaelson, Alexander Dreier and David Ginn for American Council on Education and other Higher Education Associations and Institutions as Amici Curiae on behalf of Defendants and Appellants.

Morgan, Lewis & Bockius. Thomas M. Peterson and Benjamin P. Smith for Asahi Kasei Pharma Corporation as Amicus Curiae on behalf of Defendants and Appellants.

OPINION

CHIN, J. —

A small dental implant company that had net profits of \$101,000 in 1998 has sued a university for breach of a contract for the university to clinically test a new implant the company had patented. The company seeks damages for lost profits beginning in 1998, ranging from \$200 million to over \$1 billion. It claims that, but for the university's breach of the contract, the company would have become a worldwide leader in the dental implant industry and made many millions of dollars a year in profit. Following an evidentiary hearing, the trial court excluded as speculative the proffered testimony of an expert to this effect. We must determine whether the court erred in doing so.

We conclude that the trial court has the duty to act as a "gatekeeper" to exclude speculative expert testimony. Lost profits need not be proven with mathematical precision, but they must also not be unduly speculative. Here, the court acted within its discretion when it excluded opinion testimony that the company would have become extraordinarily successful had the university completed the clinical testing.

We reverse the judgment of the Court of Appeal, which had held the trial court erred in excluding the testimony.

I. FACTUAL AND PROCEDURAL HISTORY

Because neither party petitioned the Court of Appeal for rehearing, much of this summary of the factual and procedural history is taken from that court's majority opinion. (See *Richmond v. Shasta Community Services Dist.* (2004) 32 Cal.4th 409, 415 [9 Cal.Rptr.3d 121, 83 P.3d 518]; Cal. Rules of Court, rule 8.500(c)(2).)

754 *754 **A. The Lawsuit and First Appeal**

In 1991, plaintiff **Sargon Enterprises, Inc. (Sargon)**, patented a dental implant that its president and chief executive officer, Dr. **Sargon Lazarof**, had developed. The United States Food and Drug Administration approved the implant, which meant it could be sold and used in the United States. As the Court of Appeal opinion described it, **Sargon's** implant "could be implanted immediately following an extraction and contained both the implant and full restoration. [¶] In the 1980's, the standard implant was the Branemark implant developed at the University of Gothenburg in Sweden. The Branemark implant required several steps. First, surgery would place the implant in a healed extraction socket in the patient's mouth; a second surgery would inspect the implant to see if it had properly integrated with the bone (a process known as `osseointegration'); last, a crown would be placed on the implant. **Sargon's** implant was a one stage implant: it expanded immediately into the bone socket with an expanding screw; this mechanism permitted the implant to be `loaded' with a crown the same day."

In 1996, **Sargon** contracted with defendant University of Southern California (USC) for the USC School of Dentistry to conduct a five-year clinical study of the implant. In May 1999, **Sargon** sued USC and faculty members of its dental school involved in the study, alleging breach of contract and other causes of action. USC cross-claimed for breach of contract. All of **Sargon's** claims except the breach of contract claim against USC were eliminated by demurrer or summary judgment. In 2003, the contract action was tried before a jury. Before trial, at an in limine hearing, the trial court excluded evidence of **Sargon's** lost profits on the ground USC could not have foreseen them.

The evidence presented at trial showed that after initial success in the clinical trials, USC failed to present proper reports as its contract with **Sargon** required. The jury found that USC had breached the contract and awarded **Sargon** \$433,000 in compensatory damages. It also found in **Sargon's** favor on USC's cross-complaint for breach of contract.

Sargon appealed. The Court of Appeal reversed the judgment, holding that the trial court had erred in excluding evidence of **Sargon's** lost profits on the ground of foreseeability.^[1] It also stated, "Given that the in limine hearings focused on foreseeability and not the amount of lost profit damages, it is premature to determine whether such damages can be calculated with reasonable certainty." (*Sargon Enterprises, Inc. v. University of Southern California* (Feb. 25, 2005, B163707) [nonpub. opn.])

755 *755 On remand, the case proceeded to retrial on the breach of contract claim. USC moved to exclude as speculative the proffered opinion testimony of one of **Sargon's** experts, James Skorheim. The court presided over an eight-day evidentiary hearing at which Skorheim was the primary witness.

B. The Evidentiary Hearing

Skorheim testified that he was a certified public accountant and an attorney. He had been an accountant for 25 years and "work[ed] as a business and industry analyst and forensic accountant." As the Court of Appeal summarized, he testified that **Sargon's** lost profits "ranged from \$220 million to \$1.18 billion. In preparing his opinion, Skorheim reviewed litigation materials (including deposition transcripts and reports of USC's damages experts), financial information from **Sargon** and its competitors (including annual reports), and market analyses of the global dental implant market prepared by Millennium Research Group ..." (Millennium). Skorheim based his opinion on a "market share" approach, by which he determined what share of the worldwide dental implant market **Sargon** would have gained had USC completed a favorable clinical study, and he calculated future profits based on that market share. "Skorheim used the market share approach to lost profit damages because the methodology had been used in complicated patent cases, antitrust cases, and unfair competition cases."

The Court of Appeal summarized Skorheim's testimony about the dental implant industry: "Nobel Biocare's Branemark implant was the pioneer implant developed in the 1960's and 1970's and required two surgeries. Straumann developed the second generation implant, which was placed in the bone without being submerged in the gum. In the early 1990's, there was very little penetration into the potential dental implant market. Out of millions of potential patients, only about 1 percent of this potential market was receiving product, presenting an opportunity for tremendous growth. In the late 1990's, the market began to grow dramatically. Industry reports demonstrated the global market was expected to grow during the period 1998 to 2009 at an annualized rate of 18.5 percent. At the time, the market craved technological innovation aimed at shortening healing time, cost, and treatment time. [Millennium] predicted that sales of immediate load implants would grow at compound annual rates of 56.3 percent during 2002 to 2006, and 32.8 percent from 2005 to 2009. Further, [Millennium] reported in 2004, immediate loading implants represented only a `niche' market because demand was limited by industry acceptance. By 2009, immediate load implants would account for 14.9 percent of the United States market, up from 0.4 percent in 2000.

756 "Sargon's innovation lay in the use of an 'immediate load implant,' the 'holy grail of dental implantology,'" which was directed at the market's need for ease of use, shortened healing times, and overall cost. Given the state of the implant market at the time, in Skorheim's opinion an innovator such as Sargon would have rapidly commanded a significant market share; with the exception of Nobel Biocare, all of the other major implant makers are recent arrivals on the scene."

In Skorheim's opinion, three key "market drivers" operate in the dental implant industry: (1) innovation, (2) clinical studies, and (3) outreach to general practitioners. A company must have all three to be successful. Skorheim had testified, the Court of Appeal stated, that "[t]he value of a clinical study to an implant maker is two-fold: It establishes the efficacy of the device and permits entry into the universities where students can be taught to use the device, with the expectation that, upon graduation, they will use the product in their practices." He believed that clinical success of the Sargon implant would likely lead to commercial success. Skorheim also had testified that because virtually every dental implant company employed clinical studies and general practitioner outreach, innovation really determined market success and what market share a company would achieve. He had explained, "The greater the technological achievement in the product mix, the greater the likelihood for revenues." In Skorheim's opinion, innovation was a necessary prerequisite to achieving market success. "[F]irst and foremost, you have to have the technological innovation and the efficacy."

As the Court of Appeal observed, "Skorheim's 'market share' approach was based upon a comparison of Sargon to six other large, multinational dental implant companies that were the dominant market leaders in the industry, and which controlled in excess of 80 percent of global sales (Big Six): Nobel Biocare, Straumann, [Biomet 3i], Zimmer, Dentsply, and Astra Tech. Although there are approximately 96 companies worldwide that make dental implants, Skorheim believed the Big Six were the top innovators based upon his analysis of the [Millennium] report and market intelligence." Skorheim had described the smaller companies as "copycats" and "price cutters" that competed on the basis of price and were not innovative; he believed that "the top six are innovators and the rest are copycats." The Court of Appeal stated: "On cross-examination, Skorheim acknowledged that [Millennium's] report did not state the Big Six were the most innovative; rather, it was an inference he drew from reviewing the report and the size and success of the companies in comparison to other, smaller companies."

757 Skorheim had acknowledged that many of the smaller companies claimed to be innovative, but he believed in fact they were not. When the trial court noted that the Millennium report mentioned other companies that claimed to be innovative, Skorheim had responded, "And I would say that the proof is in the pudding. And the proof is their ability to track the market share and they haven't been able to do that." When asked whether he agreed "that the company with the largest market share is not necessarily the most innovative," Skorheim had answered, "I don't think I can agree with that. I mean, ultimately, the markets determine what's innovative and what's not innovative. These markets reward innovativeness... And so the market really makes a determination of which of these companies is more innovative than not by the extent to which they reward them with purchasing their products, and so forth." Skorheim had acknowledged that the Millennium report did not specifically indicate that some of the smaller companies were not innovative, but explained that this was because "those companies are not big enough to be even addressed in the global market, so there's nothing specific."

Skorheim believed that Sargon was innovative, like the "Big Six," and not a "copycat" or "price cutter," like the other small companies. He acknowledged that Sargon was a very small company whose annual profits peaked in 1998 at around \$101,000 and, unlike the big companies, it had no meaningful marketing or research and development organization and no parent company to assist it. But he believed these factors were merely "incidental" to innovation and played little role in achieving market share. Accordingly, and because innovation is the key factor driving market success, Skorheim had compared Sargon to the "Big Six" rather than to the smaller companies in computing lost profits. He considered the Big Six and Sargon to be "comparable companies."

Skorheim had testified that "assuming the jury finds [the new implant] was a superior innovative revolutionary product and based upon everything else I see in the materials here, I think that Sargon had a very good chance of becoming the market leader over a period of time. I estimated maybe a 10-year period of time." Indeed, he believed to a "reasonable certainty" that within 10 years or so Sargon would have become a market leader. He also believed it likely that one of the "Big Six" would have dropped out of the leadership, and that Sargon would have replaced that company as a world leader.

758 When the trial court asked whether it mattered that some of the big companies had many different products, Skorheim had responded that Sargon "would have to remain competitive by investing significant amounts of money in [research and development] like ... the other major manufacturers. Each of them are investing tens of millions of dollars a year into research and development to remain strong and technologically sound." He was confident that a company like Sargon would have been able to expend the necessary resources to "develop other products over time, that they would be able to use their patented expandable root process with other types of coatings, let's say, or shapes or sizes." He thought Sargon's ability to do so distinguished it from the other small companies.

The Court of Appeal stated: "Skorheim outlined similarities and differences between the Big Six and Sargon: First, they all manufactured titanium implants, and the implants were one-stage, two-stage, or immediate load (Sargon only); second, all used

clinical studies; third, all used outreach to general practitioners; fourth, pricing was substantially the same; fifth, their qualitative and quantitative cost structures were the same; and the implants were manufactured either in-house or pursuant to a contract with a third party. Qualitative cost structure consisted of cost of goods sold, research and development costs (R & D), sales and marketing costs, and general administrative costs. **Sargon** did not have a meaningful R & D organization or a sales and marketing department. In all other respects, **Sargon's** costs were similar to the Big Six." Skorheim had acknowledged, however, that he could not think of any objective "business metric" — "whether it's sales, number of employees, number of distributors, anything" — by which **Sargon** was comparable to, for example, Astra Tech, the member of the "Big Six" with the smallest market share.

The Court of Appeal opinion provided a chart summarizing Skorheim's testimony regarding **Sargon** and its competitors for the "relevant time period, approximately 1998." We reproduce it here:

	Sargon (1998)	AstraZeneca (1999)	Dentsply (1998)	Biomet 3i (2000)	Nobel [^[2]] (1998)
Employees	< 20	> 55,000	> 6,000	> 4,000	> 1,000
R&D	\$46,000	\$2,923,000,000	\$18,200,000	\$40,208,000	\$8,741,808
Net Sales	\$1,748,612	\$18,445,000,000	\$795,122,000	\$920,582,000	\$164,747,305
Net Profits	\$101,113	\$1,143,000,000	\$34,825,000	\$173,771,000	\$5,868,080
Assets	\$544,977	\$19,816,000,000	\$895,322,00	\$1,218,448,000	\$243,621,260
Market Share (2007) [^[3]]	N/A	4.8%	7%	17%	22-23%

The dental implant business was only part of AstraZeneca's company. Skorheim testified that Astra Tech, its dental implant division, had sales in 1999 of \$111 million.

759 *759 For the reasons he gave, Skorheim believed that **Sargon**, unlike any of the other smaller companies, would, over time, have become a market leader, one of the "Big Six." In calculating **Sargon's** lost profits, he had not considered profits **Sargon** had ever actually realized, but instead considered the market leaders' profits. He believed that **Sargon's** profits would have increased over time until they reached the level of one of the market leaders. He testified, however, that in one respect he had taken into account **Sargon's** actual income.^[4] He had started with **Sargon's** gross revenues (not net income) in 1998, the year USC should have produced an interim report, which were around \$1.7 million to \$1.8 million and constituted approximately one-half of 1 percent of the total global market. He then doubled that number based on his belief that, had the initial report from the clinical study been favorable and had other potentially favorable publicity followed, **Sargon** would have sold approximately 20 implants each to approximately 200 additional dentists. This would have brought **Sargon's** market share for that year to about 1 percent. Skorheim believed that beginning in 1998, **Sargon's** market share would have "ramp[ed] up" over the years from this 1 percent to a share that a comparable member of the "Big Six" enjoyed. He had calculated the lost profits based on sales in 1998 of over \$3 million and a subsequent increase each year until **Sargon** reached the level of one of the "Big Six."

Skorheim claimed no expertise regarding how innovative **Sargon's** dental implant was, although he had testified that "the immediate loading of implants is kind of the so-called holy grail of dental implantology." He said the jury would have to "wrestle" with the question of how innovative **Sargon** was. Because of this lack of expertise, Skorheim could not give a single sum of lost profits. Rather, in Skorheim's opinion, the amount would depend on how innovative the jury found **Sargon** to be, compared to the market leaders.

As the Court of Appeal explained, "Skorheim's damages model created four alternative damage scenarios based upon the jury's determination of the innovativeness of the implant. As a predicate, Skorheim had ranked the innovativeness of the comparator companies and established a hierarchy. If the jury concluded **Sargon's** level of innovation was equal to the least innovative of the benchmark companies, Astra Tech, **Sargon** would have attained a 3.75 percent share; if the jury concluded **Sargon's** level of innovation was equal to one of the lesser innovators of the benchmark companies, like Dentsply, **Sargon** would have attained a 5 percent market share; if the jury concluded **Sargon's** level of innovation was equal to a middle-level innovator, like [Biomet 3i], **Sargon** would have attained a 10 *760 percent share; and if the jury concluded **Sargon's** level of innovation was that of the most innovative companies, Nobel Biocare and Straumann, **Sargon** would have attained a 20 percent market share." In establishing this hierarchy,

Skorheim had assumed that the higher the market share a company had obtained, the more innovative it was. He also agreed, however, that it was possible, for example, that Astra Tech, with its smaller market share, was more innovative than Biomet 3i, which had a greater market share.

For each of these four scenarios, Skorheim had calculated lost profits from 1998 to 2009, then added what he calculated to be post-2009 lost profits. Skorheim believed that **Sargon's** net profits, which in actuality peaked at \$101,000 in 1998, would have grown to \$26 million per year in 2009 under the least profitable of the scenarios, and to \$142 million per year in 2009 under the most profitable of the scenarios.

The Court of Appeal opinion provided a chart summarizing Skorheim's lost profits calculations. We reproduce it here:

Market Share	3.75% (Astra Tech)	5% (Dentsply)	10% (Biomet 3i)	20% (Nobel/Strau.)
Lost Profits 1998-2009	\$120,011,000	\$181,020,949	\$335,940,541	\$640,232,628
Value Post 2009	100,473,347	134,343,563	269,824,425	540,786,150
TOTAL:	\$220,484,347	\$315,364,512	\$605,764,968	\$1,181,018,778

Thus, Skorheim had projected total lost profits of \$220 million if the jury found **Sargon's** innovation was comparable to that of the least innovative market leaders, making what he described as a "meaningful contribution to innovation"; of \$315 million if the jury found **Sargon's** innovation was somewhat greater; of \$600 million if the jury found **Sargon's** innovation was somewhat greater yet; and of \$1.2 billion if the jury found **Sargon's** innovation was comparable to that of the market leaders, making what he described as "revolutionary industry changing technology."

The Court of Appeal summarized the testimony of the other witnesses at the evidentiary hearing. "Dr. Lazarof confirmed Skorheim's conclusion that innovation coupled with clinical studies was the driver of market share. **Sargon** also presented the testimony of Steven Hanson, president from 1992 to 2004 of Calcitek, a successful implant company, who testified **Sargon** could have commanded a 15 to 20 percent share of the market if the USC study had been completed, although he had not done a market study or considered the probability of all of the other steps necessary to get **Sargon** a 15 to 20 percent market share. Robert Pendry was at Straumann from 1992 to 2001 and at Thommen Medical from 2002 to 2006, and testified that in his ⁷⁶¹ opinion the **Sargon** implant was 'absolutely revolutionary' and 'world changing' when introduced in 1997 to 1998. In Pendry's words, the **Sargon** implant 'was the most exciting thing I'd heard in the implant business ever.'"

C. The Trial Court's Ruling

Following the evidentiary hearing, the court issued a 33-page written ruling on USC's motion to exclude Skorheim's testimony.

The court began by quoting an opinion by Judge Friendly of the Second Circuit Court of Appeals stressing the need to protect juries from "an array of figures conveying a delusive impression of exactness in an area where a jury's common sense is less available than usual to protect it." (*Herman Schwabe, Inc. v. United Shoe Machinery Corp.* (2d Cir. 1962) 297 F.2d 906, 912.) The court found it unreasonable for Skorheim, "or any such expert, to rely on much of the data which forms the basis of his opinions, because no data bears any resemblance to Plaintiff's historical profits or to those of any similar business." "Mr. Skorheim's opinion leaves the determination of up to a billion dollars of lost profit damages to pure speculation."

The court assumed for purposes of its ruling "that a 'market share' analysis is appropriate and warranted under California law," but it found that Skorheim's "market share opinion is not based on any actual historical financial results or comparisons to similar companies and, therefore, is not based on matter of a type [on which] an expert may reasonably rely." "The fatal flaw in Mr. Skorheim's reasoning is that it starts off assuming, without foundation, its conclusion. The fatal flaw in his analysis is that he relies on data that in no way is analogous to Plaintiff. Mr. Skorheim deems Plaintiff's historical data, such as past business volume, 'not relevant' to his lost profits projections." (Fn. omitted.)

The court noted that at the evidentiary hearing, Skorheim had "offered a new opinion that would have been grounded in some historical performance." It explained that it had sustained USC's objection to this new opinion "on grounds it was never disclosed in discovery. This court notes that this new methodology is directly inconsistent with Mr. Skorheim's declaration, depositions testimony

and the position Plaintiff has taken throughout this litigation.... Regardless, the methodology of the new opinion is unreasonable." Later in the evidentiary hearing, "Plaintiff again attempted to show some historical grounding for the damage projections. Mr. Skorheim testified that his damage projections started with **Sargon's** gross revenues of \$1,700,000 in 1997. Mr. Skorheim then doubled those revenues in 1998 To accomplish this, Mr. Skorheim assumed a favorable USC study and resultant publicity would cause 200 more dentists to buy at least 20 more implants each. The *762 Court can find no factual basis for this assumption. [¶] ... [¶] This Court specifically finds that **Sargon's** historical performance played no role in determining Mr. Skorheim's market projections, except to the extent that **Sargon's** data showed it had some sales."

The court found that Skorheim's "projections are wildly beyond, by degrees of magnitude, anything **Sargon** had ever experienced in the past. Under the 20% market share scenario, for example, Plaintiff would see its profits climb by 534.4% the first year, and by over 157,000% by 2009." Instead, the court found, Skorheim "starts his analysis with a comparison to industry leaders, all multi-million or multi-billion international corporations, or subsidiaries of such. This, of course, is unavoidable if one only looks to industry `drivers' to ascertain who most successfully employs those `drivers.' [¶] The only thing these established companies have in common with Plaintiff is that they all sell or make dental implants. In all other respects, in areas the [Millennium] report deems relevant, such as size, history, product line, sales force, access to financing, among others, they are worlds apart from **Sargon**." (Fn. omitted.)

The court noted that Skorheim had testified "that of all the 98 dental implant manufacturers, he could not identify one that did not pursue clinical studies or target general practitioners, rendering these two `drivers' meaningless for comparison purposes. [¶] Moreover, many implant companies who touted `innovative' products, yet had smaller revenues, were omitted for comparison purposes." In his testimony, "Mr. Skorheim grouped the companies that he deemed had `innovative' products. He omitted certain smaller companies who, according to the [Millennium] report, also claimed to have innovations. When asked in court to explain this omission, he testified, `The proof is in the pudding.' The small market share of these companies showed the market disagreed. Apparently, a product is `innovative' if the market embraces it and it sells. [¶] The summary exclusion of other companies from his analysis, along with the fact that it should not be a startling revelation that biotechnology companies that have innovative products, all other things being equal, do better than those who do not, render this `driver' equally meaningless for comparison purposes." The court found this argument to be "entirely circular."

The court continued: "At the hearing, Plaintiff changed its theory and attempted to show that it was similar to the industry leaders in ways other than possession of the three `drivers.' The characteristics that Mr. Skorheim contended made Plaintiff `similar' to the industry leaders, however, were characteristics common to most, if not all, implant companies. Obviously, if most share these `common traits,' the traits are meaningless for comparison purposes. If, based upon these common characteristics, the very smallest is *763 considered `similar' to the very biggest, all cases that have required objective similarity would be effectively overruled, and the rule requiring `similarity' would cease to exist. This Court finds that **Sargon** is not similar to the industry leaders by any relevant, objective business measure."

The court found that the dissimilarity between **Sargon** and the industry leaders "is sufficient, itself, to grant Defendant's motion" to exclude Skorheim's testimony, but "this court has other problems with Mr. Skorheim's opinion that give further grounds, by themselves, to grant Defendant's motion." It found that "[c]omparing `degrees of innovation' with other products fails to give the jury standards from which it can make a rational decision, is inherently speculative and subjective, and thus fails to assist the jury in its fact-finding function. [¶] The relevance of Mr. Skorheim's testimony, if any, is that it provides the jury with an evidentiary basis to make market share choices and thus assess damages. The jury can choose from four market shares ranging from 3.75% to 20%, depending upon its finding of relative `innovativeness.' The highest rating gets Nobel Biocare's share, with the lesser market share percentages awarded depending upon whether the innovativeness of the Plaintiff's implant is more on a par with products from Zimmer, 3i, and Straumann. The lowest percentage finding the jury can make is that the innovativeness of the **Sargon** implant is comparable to Astra Tech's or Dentsply's products. The fatal problem with this is that there is little rational basis for this choice, and no rational standards for how the jury is to choose.

"Implicit in this choice is that there is an evidentiary basis for this ranking; an `innovativeness' pecking order where, in fact, Nobel Biocare is on top, others follow, with Astra Tech and Dentsply on the bottom. Likewise, there must be an evidentiary basis for degree of difference; evidence that shows not only that Nobel Biocare is more innovative, but, with 20% of the market, it must be twice as `innovative' as 3i, in the 10% group, and so on. Otherwise, `innovativeness' would not track the percentage market share for the findings he proposes the jury make. Yet, the only factual basis for such a pecking order comes from Dr. Lazarof's opinion of such, and there is no evidence or reason to believe one company is more innovative than another, in the percentage difference, other than the fact the companies have different market shares. [¶] ... [¶] The only possible evidentiary support for the percentage difference in the pecking order comes from Mr. Skorheim's oft repeated observations of the marketplace. Certain smaller companies, who claimed to have innovative products, were excluded from his `industry leader' market share list because `the market' disagreed with their claim of `innovativeness.' `The proof is in the pudding,' Mr. Skorheim explained. If their products were truly innovative, they would sell more and

764 thus have larger market shares. [¶] ... [¶] To the extent that this ranking of `innovativeness,' with Nobel Biocare on top with 20%, and Astra Tech on the bottom with 3.75%, rests on *764 the fact that some have larger market shares, it rests on nothing more than a tautology. As there is no evidentiary basis that equates the degree of innovativeness with the degree of difference in market share, the question posed to the jury — to rank innovativeness and assign a market share, the *sine qua non* of Mr. Skorheim's opinion — has no rational basis."

Additionally, the court continued, "[t]he only rational answer to the question Mr. Skorheim seeks to have the jury answer comparing `innovativeness' is `it depends.' What is `most innovative' about any implant depends upon what the practitioner and patient think is important. [¶] What is good, better or best is inherently subjective, and depends upon the need, the patient, the price, and the situation. [¶] ... [¶] It is not that the jury, given the time confines of a trial, will not have enough information to decide relative `innovativeness,' it is that no jury, given an infinite amount of time, will ever have enough information. Such is the nature of purely subjective determinations. Which is the most innovative implant? The Court expects there to be experts giving their views, but do we have any standards or guidelines to help us in the determination?"

The court explained that in the Millennium reports "there are many different types of implants. The market leaders have product lines of implants to serve the diverse needs of patients and practitioners. Some implants have different coating and/or screws. Some are immediate loading, some are two-stage loading, others have internal or external connections. Astra Tech markets an implant that it claims `has amassed significant documentation that confirms the increased bone retention right up to the top of the implant compared to competitive products.' Another Astra Tech implant is touted as `simple and easier to use.' [Citation.] Others are more `affordable' such as INNOVA Life Sciences and IMTEC. [Citation.] Each company offers a line of implant products it claims are excellent for various uses." "Is the **Sargon** implant as good or better than those offered by competitors? Plaintiff will advocate for the **Sargon** implant. Who will advocate for all the rest?"

The court explained why, in its view, Skorheim's opinion was speculative. "A jury can determine if a Ford was defective, because there are objective facts, such as industry standards and standards for safety, as well as a body of case law on the subject of products liability. A jury cannot say if a Ford is a better car than a Chevrolet, because that is subjective and depends upon what the driver wants and what he can afford, among other things.

765 "By way of example, assume that Miss Oklahoma entered into a contract to transport her to the `Miss America' contest. Assume further that the carrier breached the contract and Miss Oklahoma missed the chance to compete. A jury could decide if she was damaged by the breach, to the extent damages *765 could be ascertained. Could the jury go further and, based upon testimony of experts, decide that, had she been allowed to compete, she would have defeated Miss Colorado for the title of Miss America, or decide that she would have been second, behind Miss Colorado and ahead of Miss Montana? [¶] It is not a situation ... that juries can and do decide complex issues. Of course they do. But in all cases, including cases where jurors are asked to `rank,' as in comparative fault, there are standards in the form of jury instructions and a body of case law to refer to if needed for special instructions."

The court believed that asking a jury to rank innovativeness "is no different than deciding whether Miss Oklahoma or Miss Colorado should wear the Miss America crown. [¶] Mr. Skorheim's question calls for nothing but a subjective and speculative response. Whether an implant is good, better or best can only be answered in the market place, not the jury room. The market place has rendered its verdict: `It depends.' That is why all the various implant companies, even the very biggest, and their implants have their own market niche with corresponding minority market shares. [¶] ... [¶] Because there are no standards or guidelines to determine `degrees of innovation,' it relegates the question of determining potentially more than a billion dollars in damages to pure speculation. Accordingly, the court finds that there are two independent grounds to rule this evidence inadmissible: No damage award can be based on speculation; and evidence that cannot assist the trier of fact in the resolution of an issue is not relevant."

The court continued: "Mr. Skorheim has no qualifications to opine that but for Defendant's breach, Plaintiff would have a program of targeting general practitioners on a par with any of the companies he singled out for comparison. [¶] The [Millennium] report sets forth sales and marketing strategies for the industry leaders. For example, Nobel Biocare in the 2001-2003 timeframe had 80 field representatives in the United States alone. What makes Mr. Skorheim think that Plaintiff would equal or surpass these numbers, or done so with equal or greater success? The only information he can offer is the uncritical acceptance of Dr. Lazarof's hoped-for marketing plans. Whether these plans would ever have been implemented as anticipated, or succeeded, is pure speculation."

766 "Mr. Skorheim testified that, in the perfect world where there had been no breach, by 2007 **Sargon** would have made the seamless transition from a three-person operation to sharing industry leadership with Nobel Biocare, a multi-million dollar international corporation. Nobel Biocare touts, according to the annual reports he relied upon, many different product lines, including different types of implants. When asked how **Sargon** could be an industry leader with only one implant (he later testified that **Sargon** had developed *766 seven) Mr. Skorheim testified that `he would expect' **Sargon** to have invested in `R and D' in the intervening years and also, by 2007, to have invented new products and coatings. Mr. Skorheim thus opined that not only would **Sargon** have invested in `R and D'

by 2007, but has also opined on what the results of that 'R and D' would be. [¶] It is not reasonable for any expert to make such a faith-based prediction so absolutely devoid of any factual basis about an industry where he has no expertise."

Additionally, "nowhere in [Skorheim's] success scenario is any mention of how competitors will react to having their market share taken by Plaintiff.... We do not know if these million or billion dollar corporations, or their shareholders, would just go quietly, because it is not discussed or considered. We are forced to assume they would do nothing." "This 'Field of Dreams' 'trust me' analysis forces us to assume, speculate and believe too much. It is no different than our Miss Oklahoma asking the jury to vote her Miss America and arguing that her damages include the inevitable movie deals and product endorsements that 'common sense' dictates every Miss America receives and were lost because her transportation breached the contract to take her to the contest." (Fn. omitted.)

In its concluding portion, the court stated that "case law demands that to establish such lost profits through expert testimony, the expert must base his/her opinion on either historical performance of the company or a comparison to the profits of companies similar in terms of size, locality, sales, products, number of employees and other relevant financial factors. A party is not permitted to 'make up' its own factors as a basis for comparison and invite the jury to decide whether the corporations are similar. To allow this is to invite proceedings where there are no objective standards as there will always be some way to argue that companies are 'similar,' no matter how superficial or irrelevant. Here, for example, the factors Mr. Skorheim uses would lead to the absurd result that **Sargon**, one of the industry's smallest companies, was 'similar' to the largest. In assessing lost profit damages in this context, there is a meaningful difference between biggest and smallest. [¶] Mr. Skorheim admittedly shunned historical performance and comparison to companies of similar size and financial situation, choosing instead to compare Plaintiff to multi-national industry giants based upon his own criteria of 'similar.' His criteria, even assuming he has the qualifications to decide them, which he does not, are nebulous and legally irrelevant under case law. Accordingly, there is no issue of similarity to give to the jury to compare and decide."

767 The court concluded "that Mr. Skorheim's opinions are not based upon matters upon which a reasonable expert would rely, and do not show the nature and occurrence of lost profits with evidence of reasonable reliability, *767 because his opinion is not based on any historical data from Plaintiff or a comparison to similar businesses. The court also finds his 'market drivers' meaningless for comparison purposes. Additionally, his opinion rests on speculation and unreasonable assumptions."

Accordingly, the court granted USC's motion to exclude Skorheim's testimony.

D. The Second Appeal

After the court excluded Skorheim's testimony, the parties stipulated to entry of judgment for \$433,000 on **Sargon's** breach of contract claim. **Sargon** appealed for the second time.

By a two-to-one vote, the Court of Appeal reversed the judgment and remanded the matter for a new trial on lost profits. It concluded the trial court erred in excluding Skorheim's testimony.

After reviewing in detail the facts, the parties' arguments, and the relevant law, the court found that "**Sargon** has the better argument here.... In 1998, **Sargon** had about \$1.8 million in revenues, roughly one-half of 1 percent of the global market for dental implants. Astra Tech, one of the companies relied on by Skorheim, had around \$18.5 million in revenues, for a 4.8 percent market share. The other companies had greater revenues and market shares. At the very least, the jury was entitled to hear about Astra Tech because it was sufficiently similar to **Sargon**, and a damages award based on a comparison to that company would have been supported by substantial evidence, not speculation.

"We acknowledge the difficulty in determining lost profits when an established business is built upon the sale of an innovative, revolutionary, or world-changing product. The factor of innovation — what the trial court described as a 'beauty contest' — is not easily converted into dollars and cents. But exactitude is not required. None of **Sargon's** competitors used its implant, and, to that extent, they were different. But lost profits may be based on a comparison of similar companies; they need not be identical in all respects. Skorheim's expert opinion was based on 'economic and financial data, market surveys and analyses, business records of similar enterprises, and the like.' (*Kids' Universe v. In2Labs* [2002] 95 Cal.App.4th 870, 884 [116 Cal.Rptr.2d 158].) He also considered **Sargon's** historical financial data. The trial court's ruling is tantamount to a flat prohibition on lost profits in any case involving a revolutionary breakthrough in an industry.

768 "If USC had not sabotaged the clinical study of the **Sargon** implant, **Sargon** would have had a successful clinical trial to its credit and a prominent *768 university using the implant at its dental school. But it was denied. Through its wrongful conduct, USC allegedly caused the loss of profits and has made the proof of lost profits all the more difficult, thereby rendering its evidentiary attack unconvincing. (*GHK Associates v. Mayer Group, Inc.* [1990] 224 Cal.App.3d 856, 874 [274 Cal.Rptr. 168].) We have carefully

reviewed the trial court's criticisms of Skorheim's proffered testimony and conclude they were better left for the jury's assessment."

Justice Johnson dissented. He argued that "[w]here, as here, the law does not offer precise parameters to the quantum of proof required to establish lost profit damages, a trial court must be permitted to draw the line in the sand, either letting the evidence in as meeting the certainty threshold, or excluding it as below that threshold. The placement of that threshold is left to the trial court so long as it is within the bounds of the law." He found the trial court's decision to be "founded on a detailed, methodical and well-reasoned examination of the law of contracts and the limits on lost profits damages.... [¶] ... [T]he task of determining the threshold measure of certainty to permit Skorheim's opinion to go to the jury should be left to the gatekeeping function of the trial court, in the context of its evidentiary rulings after an evaluation of all of the facts, evidence, and arguments. Here, the trial court drew a very reasonable line in the sand with its ruling excluding **Sargon's** evidence of lost profit damages. I see no justification for this court to overturn that decision."

The dissent argued that "**Sargon** was not similar to the Big Six under any relevant, objective business measure" and found "nothing in this ruling that indicates the trial court acted in an arbitrary, capricious fashion, was guided by whim rather than the rule of law, or exceeded the bounds of reason." Justice Johnson added that "while I admittedly share with the trial court a healthy dose of skepticism over Skorheim's unyieldingly optimistic projections for **Sargon's** market share growth and while I struggle to see a nexus between those projections and business and economic reality, this dissent nonetheless does not stem from the havoc that Skorheim's methodology may wreak upon reasonable damage calculations but from the damage done to the trial judge's reasonable and prudently exercised judgment on an evidentiary issue over which he and he alone should have decisional authority, absent arbitrariness and capriciousness. Nothing in the trial judge's reasonable, straightforward and clearly articulated evidentiary ruling bears even a smidgeon of arbitrariness or capriciousness." Accordingly, Justice Johnson would have affirmed the trial court's ruling excluding Skorheim's testimony.

We granted USC's petition for review to decide whether the trial court erred in excluding Skorheim's testimony.

769 *769 II. DISCUSSION

This case stands at the intersection of two legal principles: (1) Expert testimony must not be speculative, and (2) lost profit damages must not be speculative. We will discuss both principles, then apply them to this case.

A. Expert Testimony

(1) As did the trial court, we begin our consideration of expert testimony with words that Judge Friendly wrote half a century ago: "There is no bright line that divides evidence worthy of consideration by a jury, although subject to heavy counter-attack, from evidence that is not. Especially because of the guaranty of the Seventh Amendment, a federal court must be exceedingly careful not to set the threshold to the jury room too high. Yet it is the jury system itself that requires the common law judge, in his efforts to prevent the jury from being satisfied by matters of slight value, capable of being exaggerated by prejudice and hasty reasoning ... to exclude matter which does not rise to a clearly sufficient degree of value'; 'something more than a minimum of probative value' is required. 1 Wigmore, Evidence (3d ed. 1940), pp. 409-410. These comments are especially pertinent to an array of figures conveying a delusive impression of exactness in an area where a jury's common sense is less available than usual to protect it." (*Herman Schwabe, Inc. v. United Shoe Machinery Corp.*, *supra*, 297 F.2d at p. 912.)

Although Judge Friendly was discussing federal law and federal courts, his comments, both in their cautionary note that, due to the jury trial right, courts should not set the admission bar too high, and in their stressing the need to exclude unreliable evidence, could just as well have described California law and California courts. Under California law, trial courts have a substantial "gatekeeping" responsibility.^[5]

(2) Evidence Code section 801 provides: "If a witness is testifying as an expert, his testimony in the form of an opinion is limited to such an opinion as is: [¶] (a) Related to a subject that is sufficiently beyond common experience that the opinion of an expert would assist the trier of fact; and [¶] (b) Based on matter ... that is of a type that reasonably may be relied upon by an expert in forming an opinion upon the subject to which his testimony relates, unless an expert is precluded by law from using such matter as a basis *770 for his opinion." (Italics added.) Subdivision (b) clearly permits a court to determine whether the matter is of a type on which an expert may reasonably rely.

In *Lockheed Litigation Cases* (2004) 115 Cal.App.4th 558, 563 [10 Cal.Rptr.3d 34], the plaintiffs argued that under Evidence Code section 801, subdivision (b), "a court should determine only whether the type of matter that an expert relies on in forming his or her

opinion is the type of matter that an expert reasonably can rely on in forming an opinion, without regard to whether the matter relied on reasonably does support the particular opinion offered." The Court of Appeal disagreed. "An expert opinion has no value if its basis is unsound. [Citations.] Matter that provides a reasonable basis for one opinion does not necessarily provide a reasonable basis for another opinion. Evidence Code section 801, subdivision (b), states that a court must determine whether the matter that the expert relies on is of a type that an expert reasonably can rely on `in forming an opinion *upon the subject to which his testimony relates.*' (Italics added.) We construe this to mean that the matter relied on must provide a reasonable basis for the particular opinion offered, and that an expert opinion based on speculation or conjecture is inadmissible." (*Lockheed Litigation Cases, supra, at p. 564.*)

(3) We agree with this analysis. Indeed, as the Court of Appeal in that case also noted (*Lockheed Litigation Cases, supra, 115 Cal.App.4th at p. 564*), the California Law Revision Commission comments to Evidence Code section 801 explained that "under existing law, irrelevant or speculative matters are not a proper basis for an expert's opinion. See *Roscoe Moss Co. v. Jenkins [(1942) 55 Cal.App.2d 369 [130 P.2d 477]]* (expert may not base opinion upon a comparison if the matters compared are not reasonably comparable)" (*Cal. Law Revision Com. com., 29B pt. 3A West's Ann. Evid. Code (2009 ed.) foll. § 801, p. 25.*) Comments of a commission that proposed a statute are entitled to substantial weight in construing the statute, especially when, as here, the Legislature adopted the statute without change. (*Jevne v. Superior Court (2005) 35 Cal.4th 935, 947 [28 Cal.Rptr.3d 685, 111 P.3d 954].*)

(4) Thus, under Evidence Code section 801, the trial court acts as a gatekeeper to exclude speculative or irrelevant expert opinion. As we recently explained, "[T]he expert's opinion may not be based `on assumptions of fact without evidentiary support [citation], or on speculative or conjectural factors [¶] Exclusion of expert opinions that rest on guess, surmise or conjecture [citation] is an inherent corollary to the foundational predicate for admission of the expert testimony: will the testimony assist the trier of fact to evaluate the issues it must decide?' (*Jennings v. Palomar Pomerado Health Systems, Inc. (2003) 114 Cal.App.4th 1108, 1117 [8 Cal.Rptr.3d 363].*)" (*People v. Richardson (2008) 43 Cal.4th 959, 1008 [77 Cal.Rptr.3d 163, 183 P.3d 1146]*; accord, *People v. Moore (2011) 51 Cal.4th 386, 405 [121 Cal.Rptr.3d 280, 247 P.3d 515].*)

771 *771 Additionally, as a recent law review article explains, Evidence Code section 801 is not the only statute that governs the trial court's gatekeeping role. We must also consider Evidence Code section 802. (See Imwinkelried & Faigman, *Evidence Code Section 802: The Neglected Key to Rationalizing the California Law of Expert Testimony*, (2009) 42 Loyola L.A. L.Rev. 427 (hereafter Imwinkelried & Faigman).)

(5) Evidence Code section 802 provides: "A witness testifying in the form of an opinion may state ... the *reasons* for his opinion and the matter ... upon which it is based, unless he is precluded by law from using such reasons or matter as a basis for his opinion. The court in its discretion may require that a witness before testifying in the form of an opinion be first examined concerning the matter upon which his opinion is based." (Italics added.) This section indicates the court may inquire into the expert's reasons for an opinion. It expressly permits the court to examine experts concerning the matter on which they base their opinion before admitting their testimony. The *reasons* for the experts' opinions are part of the matter on which they are based just as is the *type* of matter. Evidence Code section 801 governs judicial review of the *type* of matter; Evidence Code section 802 governs judicial review of the *reasons* for the opinion. "The stark contrast between the wording of the two statutes strongly suggests that although under section 801(b) the judge may consider only the acceptability of the generic type of information the expert relies on, the judge is not so limited under section 802." (Imwinkelried & Faigman, *supra*, 42 Loyola L.A. L.Rev. at p. 441.)

(6) Evidence Code section 802 also permits the trial court to find the expert is precluded "by law" from using the reasons or matter as a basis for the opinion. "Law" includes constitutional, statutory, and decisional law." (Evid. Code, § 160.) Thus, "construed in the context of section 160, section 802 authorizes a court to promulgate case law restrictions on an expert's `reasons'" (Imwinkelried & Faigman, *supra*, 42 Loyola L.A. L.Rev. at p. 442.) This means that a court may inquire into, not only the type of material on which an expert relies, but also whether that material actually supports the expert's reasoning. "A court may conclude that there is simply too great an analytical gap between the data and the opinion proffered." (*General Electric Co. v. Joiner, supra*, 522 U.S. at p. 146, and quoted in Imwinkelried & Faigman, *supra*, 42 Loyola L.A. L.Rev., at p. 448.)

772 (7) Thus, under Evidence Code sections 801, subdivision (b), and 802, the trial court acts as a gatekeeper to exclude expert opinion testimony that is (1) based on matter of a type on which an expert may not reasonably rely, (2) based on reasons unsupported by the material on which the expert relies, or *772 (3) speculative. Other provisions of law, including decisional law, may also provide reasons for excluding expert opinion testimony.^[6]

(8) But courts must also be cautious in excluding expert testimony. The trial court's gatekeeping role does not involve choosing between competing expert opinions. The high court warned that the gatekeeper's focus "must be solely on principles and methodology, not on the conclusions that they generate." (*Daubert v. Merrell Dow Pharmaceuticals, Inc., supra*, 509 U.S. at p. 595.)

The advisory committee on the 2000 amendments to Federal Rules of Evidence, rule 702 (28 U.S.C.), which codified the rule established in *Daubert*, noted that the trial court's task is not to choose the most reliable of the offered opinions and exclude the others: "When a trial court, applying this amendment, rules that an expert's testimony is reliable, this does not necessarily mean that contradictory expert testimony is unreliable. The amendment is broad enough to permit testimony that is the product of competing principles or methods in the same field of expertise." (Advisory Com. Notes to Fed. Rules Evid., rule 702, 28 U.S.C.)

(9) The trial court's preliminary determination whether the expert opinion is founded on sound logic is not a decision on its persuasiveness. The court must not weigh an opinion's probative value or substitute its own opinion for the expert's opinion. Rather, the court must simply determine whether the matter relied on can provide a reasonable basis for the opinion or whether that opinion is based on a leap of logic or conjecture. The court does not resolve scientific controversies. Rather, it conducts a "circumscribed inquiry" to "determine whether, as a matter of logic, the studies and other information cited by experts adequately support the conclusion that the expert's general theory or technique is valid." (Imwinkelried & Faigman, *supra*, 42 Loyola L.A. L.Rev. at p. 449.) The goal of trial court gatekeeping is simply to exclude "clearly invalid and unreliable" expert opinion. (Black et al., *Science and the Law in the Wake of Daubert: A New Search for Scientific Knowledge* (1994) 72 Tex. L.Rev. 715, 788.) In short, the gatekeeper's role "is to make certain that an expert, whether basing testimony upon professional studies or personal experience, employs in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field." (*Kumho Tire Co. v. Carmichael, supra*, 526 U.S. at p. 152.)

773 *773 Except to the extent the trial court bases its ruling on a conclusion of law (which we review de novo), we review its ruling excluding or admitting expert testimony for abuse of discretion. (*People v. McWhorter* (2009) 47 Cal.4th 318, 362 [97 Cal.Rptr.3d 412, 212 P.3d 692]; *People v. Gardeley* (1996) 14 Cal.4th 605, 619 [59 Cal.Rptr.2d 356, 927 P.2d 713]; *People v. Mickey* (1991) 54 Cal.3d 612, 687-688 [286 Cal.Rptr. 801, 818 P.2d 84]; *Lockheed Litigation Cases, supra*, 115 Cal.App.4th at p. 564.) A ruling that constitutes an abuse of discretion has been described as one that is "so irrational or arbitrary that no reasonable person could agree with it." (*People v. Carmony* (2004) 33 Cal.4th 367, 377 [14 Cal.Rptr.3d 880, 92 P.3d 369].) But the court's discretion is not unlimited, especially when, as here, its exercise implicates a party's ability to present its case. Rather, it must be exercised within the confines of the applicable legal principles.

"The discretion of a trial judge is not a whimsical, uncontrolled power, but a legal discretion, which is subject to the limitations of legal principles governing the subject of its action, and to reversal on appeal where no reasonable basis for the action is shown." (9 Witkin, *Cal. Procedure* (5th ed. 2008) Appeal, § 364, p. 420; see *Westside Community for Independent Living, Inc. v. Obledo* (1983) 33 Cal.3d 348, 355 [188 Cal.Rptr. 873, 657 P.2d 365] [quoting this language].) "The scope of discretion always resides in the particular law being applied, i.e., in the 'legal principles governing the subject of [the] action' Action that transgresses the confines of the applicable principles of law is outside the scope of discretion and we call such action an 'abuse' of discretion. [Citation.] ... [¶] The legal principles that govern the subject of discretionary action vary greatly with context. [Citation.] They are derived from the common law or statutes under which discretion is conferred." (*City of Sacramento v. Drew* (1989) 207 Cal.App.3d 1287, 1297-1298 [255 Cal.Rptr. 704].) To determine if a court abused its discretion, we must thus consider "the legal principles and policies that should have guided the court's actions." (*People v. Carmony, supra*, 33 Cal.4th at p. 377.)

In this case, we consider whether the trial court properly exercised its discretion to exclude expert opinion testimony. As we have explained, the trial court's discretion in this regard is circumscribed; it must be exercised within the limits the law permits. Accordingly, we must review the record to ensure that the ruling comes within the scope of that discretion.

B. Lost Profits

774 (10) Lost profits may be recoverable as damages for breach of a contract. "[T]he general principle [is] that damages for the loss of prospective profits are recoverable where the evidence makes reasonably certain their occurrence *774 and extent." (*Grupe v. Glick* (1945) 26 Cal.2d 680, 693 [160 P.2d 832].) Such damages must "be proven to be certain both as to their occurrence and their extent, albeit not with 'mathematical precision.'" (*Lewis Jorge Construction Management, Inc. v. Pomona Unified School Dist.* (2004) 34 Cal.4th 960, 975 [22 Cal.Rptr.3d 340, 102 P.3d 257].) The rule that lost profits must be reasonably certain is a specific application of a more general statutory rule. "No damages can be recovered for a breach of contract which are not clearly ascertainable in both their nature and origin." (Civ. Code, § 3301; see *Greenwich S.F., LLC v. Wong* (2010) 190 Cal.App.4th 739, 760 [118 Cal.Rptr.3d 531].)

(11) Regarding lost business profits, the cases have generally distinguished between established and unestablished businesses. "[W]here the operation of an established business is prevented or interrupted, as by a ... breach of contract ..., damages for the loss of prospective profits that otherwise might have been made from its operation are generally recoverable for the reason that their occurrence and extent may be ascertained with reasonable certainty from the past volume of business and other provable data

relevant to the probable future sales." (*Grupe v. Glick, supra*, 26 Cal.2d at p. 692.) "Lost profits to an established business may be recovered if their extent and occurrence can be ascertained with reasonable certainty; once their existence has been so established, recovery will not be denied because the amount cannot be shown with mathematical precision. [Citations.] Historical data, such as past business volume, supply an acceptable basis for ascertaining lost future profits. [Citations.] In some instances, lost profits may be recovered where plaintiff introduces evidence of the profits lost by similar businesses operating under similar conditions. [Citations.]" (*Berge v. International Harvester Co. (1983) 142 Cal.App.3d 152, 161-162 [190 Cal.Rptr. 815].*)

(12) "On the other hand, where the operation of an unestablished business is prevented or interrupted, damages for prospective profits that might otherwise have been made from its operation are not recoverable for the reason that their occurrence is uncertain, contingent and speculative. [Citations.]... But although generally objectionable for the reason that their estimation is conjectural and speculative, anticipated profits dependent upon future events are allowed where their nature and occurrence can be shown by evidence of reasonable reliability." (*Grupe v Glick, supra*, 26 Cal.2d at pp. 692-693.)

775 "Where the *fact* of damages is certain, the amount of damages need not be calculated with absolute certainty. [Citations.] The law requires only that some reasonable basis of computation of damages be used, and the damages may be computed even if the result reached is an approximation. [Citation.] *775 This is especially true where ... it is the wrongful acts of the defendant that have created the difficulty in proving the amount of loss of profits [citation] or where it is the wrongful acts of the defendant that have caused the other party to not realize a profit to which that party is entitled." (*GHK Associates v. Mayer Group, Inc. (1990) 224 Cal.App.3d 856, 873-874 [274 Cal.Rptr. 168]* [permitting an award of profits calculated from a project's "actual income"].)

A recent case provides an example of claimed lost profits that were found to be "uncertain, hypothetical and entirely speculative." (*Greenwich S.F., LLC v. Wong, supra*, 190 Cal.App.4th at p. 743.) There the plaintiffs sought lost profits for breach of a real property sales agreement. They "presented evidence of lost profits through the testimony of [a] real estate appraiser," who testified about what the property would have been worth had it been developed according to the intended plans and specifications. (*Id.* at p. 749.) The appellate court found the resulting award of \$600,000 in lost profits to be unsupported. "[T]he occurrence and extent of the projected lost profits were not proven with the requisite *reasonable certainty* in this case." (*Id.* at p. 760.) "The evidence in this case was insufficient to show that [either plaintiff] was an established business or had a track record of successfully developing or redeveloping properties.... [¶] ... The existence of plans for a development does not supply substantial evidence that the development is reasonably certain to be built, much less that it is reasonably certain to produce profits." (*Id.* at p. 763.) "The lost profits claim was based on the assumption that [plaintiffs] would have constructed the residence according to the plans and specifications without changes and that the venture would have been profitable. These assumptions were inherently uncertain, contingent, unforeseeable and speculative. The proposed real estate development project here involved numerous variables that made any calculation of lost profits inherently uncertain." (*Id.* at p. 766.)

(13) Once again, we add a cautionary note. The lost profit inquiry is always speculative to some degree. Inevitably, there will always be an element of uncertainty. Courts must not be too quick to exclude expert evidence as speculative merely because the expert cannot say with absolute certainty what the profits would have been. Courts must not eviscerate the possibility of recovering lost profits by too broadly defining what is too speculative. A reasonable certainty only is required, not absolute certainty.

C. Application to This Case

776 We now apply these principles to this case. The issue before us is whether the court abused its discretion in excluding the expert testimony, not whether substantial evidence supports a lost profits award. But the substantive law regarding lost profits is relevant to help define the type of matter on which an *776 expert may reasonably rely. For example, as the trial court explained, "While lost profits can be established with the aid of expert testimony, economic and financial data, market surveys and analysis, business records of similar **enterprises** and the like, the underlying requirement for each is "a substantial similarity between the facts forming the basis of the profit projections and the business opportunity that was destroyed."" (Quoting *Kids' Universe v. In2Labs, supra*, 95 Cal.App.4th at p. 886.) But, as the trial court further found, Skorheim's analysis relied "on data that in no way is analogous to Plaintiff."

To the extent that the expert relied on data that is not relevant to the measure of lost profit damages, the trial court acted within its discretion to exclude the testimony because it was not "[b]ased on matter ... that is of a type that reasonably may be relied upon by an expert in forming an opinion upon the subject to which his testimony relates" (Evid. Code, § 801, subd. (b); see *Westrec Marina Management, Inc. v. Jardine Ins. Brokers Orange County, Inc. (2000) 85 Cal.App.4th 1042, 1050-1051 [102 Cal.Rptr.2d 673]* [upholding the exclusion of expert testimony due in part to substantive law of lost profits].) Accordingly, although the issue is the admissibility of expert testimony, we will also consider the law of lost profits to the extent it is relevant to that issue.

The trial court did not abuse its discretion in the sense of making a ruling that was irrational or arbitrary. It presided over a lengthy

evidentiary hearing and provided a detailed ruling. The Court of Appeal majority identified no specific error in that ruling. As the dissenter in the Court of Appeal stated, "Nothing in the trial judge's reasonable, straightforward and clearly articulated evidentiary ruling bears even a smidgeon of arbitrariness or capriciousness." Indeed, the court could hardly have exercised its discretion more carefully.

The trial court also excluded the expert testimony for proper reasons. It properly found the expert's methodology was too speculative for the evidence to be admissible. The court assumed that Skorheim's market share approach would be appropriate in a proper case. We will do so also. An expert might be able to make reasonably certain lost profit estimates based on a company's share of the overall market. But Skorheim did not base his lost profit estimates on a market share **Sargon** had ever actually achieved. Instead, he opined that **Sargon's** market share would have increased spectacularly over time to levels far above anything it had ever reached. He based his lost profit estimates on that hypothetical increased share.

777 *777 Skorheim considered **Sargon** to be comparable to the "Big Six" dental implant companies rather than the smaller ones that appear to have far more closely resembled it. He admitted that by no objective business metric, such as sales or number of employees, was **Sargon** in fact comparable to the "Big Six." Instead, he based his comparison solely on his belief that **Sargon**, like the "Big Six," and unlike the rest, was innovative, and that innovation was the prime market driver. (He also testified that clinical studies and outreach to general practitioners were market drivers, but he recognized that all dental implant companies used them, thus making them essentially irrelevant for comparison purposes.) But, as the trial court noted, Skorheim's reasoning was circular. He concluded that the "Big Six" were innovative because they were successful, and that the smaller companies (excluding **Sargon**) were not innovative because they were less successful. In essence, he said that the smaller companies were smaller because they were not innovative. The trial court properly considered this circularity in the reasoning as a basis to exclude the testimony under Evidence Code section 802.

Skorheim based his estimates on the belief that the more innovative a company was, the larger the market share it would achieve. Thus, he testified, if **Sargon** had a level of innovation equal to that of the smallest of the "Big Six," it would have gained only its level of market share. He then testified to gradations of innovation, with each increase in innovation equaling a step up in market share and thus in future profits. However, as the trial court explained, "Implicit in this choice is that there is an evidentiary basis for this ranking; an 'innovativeness' pecking order where, in fact, Nobel Biocare is on top, others follow, with Astra Tech and Dentsply on the bottom. Likewise, there must be an evidentiary basis for degree of difference; evidence that shows not only that Nobel Biocare is more innovative, but, with 20% of the market, it must be twice as 'innovative' as 3i, in the 10% group, and so on. Otherwise, 'innovativeness' would not track the percentage market share for the findings he proposes the jury make." But Skorheim also agreed that a company with a smaller market share could, in fact, be more innovative than a company with a larger share.

As the trial court further explained, "The only possible evidentiary support for the percentage difference in the pecking order comes from Mr. Skorheim's oft repeated observations of the marketplace. Certain smaller companies, who claimed to have innovative products, were excluded from his 'industry leader' market share list because 'the market' disagreed with their claim of 'innovativeness.' 'The proof is in the pudding,' Mr. Skorheim explained. If their products were truly innovative, they would sell more and thus have larger market shares. [¶] ... [¶] To the extent that this ranking of *778 'innovativeness,' with Nobel Biocare on top with 20%, and Astra Tech on the bottom with 3.75%, rests on the fact that some have larger market shares, it rests on nothing more than a tautology. As there is no evidentiary basis that equates the degree of innovativeness with the degree of difference in market share, the question posed to the jury — to rank innovativeness and assign a market share, the *sine qua non* of Mr. Skorheim's opinion — has no rational basis."

Sargon argues that the cases concerning an *unestablished* company do not apply here because it was an *established* company with a track record of having made a profit. It had, for example, a net profit of \$101,000 in 1998. But **Sargon** had no track record of being a global leader, one of the "Big Six." An established company may base its claim to future profits on evidence of its past profits, but Skorheim did not do so. He tried to compare **Sargon** to the "Big Six," but the companies were not comparable. In *Parlour Enterprises, Inc. v. Kirin Group, Inc.* (2007) 152 Cal.App.4th 281 [61 Cal.Rptr.3d 243] (*Parlour Enterprises*), a jury gave a small restaurant business called Farrell's a multimillion-dollar lost profit award. The Court of Appeal reversed the award, finding the claim of lost profits was improperly based on speculative expert testimony. The expert in that case had compared the company to "a publicly traded restaurant chain called Friendly's, which he claimed was 'relatively similar to the Farrell's concept.'" (*Id.* at p. 290.) But the Court of Appeal found the two companies not comparable. "Although one way to prove prospective profits is through the experience of comparable businesses, [the expert's] cursory description of Friendly's business model failed to establish its profit-and-loss experience is sufficiently similar to Farrell's to be relevant to the question of plaintiffs' alleged lost profits." (*Ibid.*) The court explained that "[b]efore evidence of similar businesses may be used to prove loss of prospective profits, there must be 'a substantial similarity between the facts forming the basis of the profit projections and the business opportunity that was destroyed.'" (*Id.* at p. 291.)

This case is like *Parlour Enterprises, supra*, 152 Cal.App.4th 281. Except for Skorheim's belief that, like the "Big Six" and unlike the rest of the smaller companies, **Sargon** was innovative, **Sargon** was dissimilar to all of the "Big Six." As the trial court noted, "**Sargon** is not similar to the industry leaders by any relevant, objective business measure." Skorheim did not base his lost profits estimates on any objective evidence of "past volume of business" or any "other provable data relevant to the probable future sales." (*Grupe v. Glick, supra*, 26 Cal.2d at p. 692.) Instead, as the trial court further *779 noted, Skorheim's lost profit projections were "wildly beyond, by degrees of magnitude, anything **Sargon** had ever experienced in the past."

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In finding that the trial court should have admitted Skorheim's testimony, the majority below observed that "exactitude is not required." The observation is correct. If lost profits can be estimated with reasonable certainty, a court may not deny recovery merely because one cannot determine precisely what they would have been. But exactitude is not the problem here. Whether the actual profits could logically be estimated in the manner Skorheim claimed is the problem. As the trial court noted, a lost profit award of up to \$1 billion may not be based on pure speculation.

The Court of Appeal majority found that the case of *Palm Medical Group, Inc. v. State Comp. Ins. Fund* (2008) 161 Cal.App.4th 206 [74 Cal.Rptr.3d 266] "is more on point" than *Parlour Enterprises, supra*, 152 Cal.App.4th 281. In *Palm Medical*, a medical clinic sued, claiming it was wrongly denied admission into a preferred provider network. The Court of Appeal upheld a lost profits award. But there the plaintiff's expert based his lost profits estimate on the plaintiff's own profit margin and a comparison to the profits of other clinics that had participated in the preferred provider network from which the plaintiff had been excluded. (*Id.* at p. 227.) As far as the opinion indicates, the plaintiff and the other clinics were, in fact, comparable. The opinion gives no indication the defendant claimed otherwise. Nothing in *Palm Medical* suggests the trial court here abused its discretion in finding **Sargon** not to be comparable to the "Big Six."

Sargon also relies on *Sanchez-Corea v. Bank of America* (1985) 38 Cal.3d 892 [215 Cal.Rptr. 679, 701 P.2d 826]. The trial court considered and aptly distinguished that case: "In *Sanchez-Corea*, the earnings of plaintiff's small company were compared to the earnings of `other companies, including Honeywell, which occupied the market after [plaintiff's] departure' (*Id.* at p. 907.) On appeal, the defendant complained, as does USC, that the comparison was unfair because plaintiff had `far smaller financial resources.' (*Id.* at p. 908.) [¶] **Sargon's** reliance is misplaced. The Supreme Court held the evidence supported a \$1,000,000 compensatory damage award because the damage award was based on Plaintiff's historical growth, as Plaintiff had experienced a `tenfold growth in contracts (sales) from \$180,000 in 1970 to \$1.5 million in 1973.' (*Id.* at p. 907.) In that case, the Plaintiff's expert's projections were based on pre-litigation estimates, which underestimated Plaintiff's actual growth in the year before Defendant's wrongful act and the subsequent lawsuit. The court never discussed the comparison to Honeywell, *780 and this case has never been cited as authority for comparing businesses of any size."

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As the trial court also noted, Skorheim's testimony was speculative in other ways as well. He assumed **Sargon**, which had virtually no marketing or research and development departments, would have developed such departments to permit it to compete with the "Big Six," all of which had large ones. He assumed one of the "Big Six" would fall out of that group, and **Sargon** would replace it. He assumed the "Big Six" would have taken no steps to contend with their new competitor, **Sargon**. All of these factors also support the trial court's exclusion of Skorheim's testimony.

Skorheim gave the opinion that, to a "reasonable certainty," **Sargon** would have become a market leader within 10 years. The quoted term derives from the law of lost profits. We stated in *Grupe v. Glick, supra*, 26 Cal.2d at page 693, that lost profits must be "reasonably certain" to be recoverable. But, as the trial court found, this testimony was inherently speculative. It "involved numerous variables that made any calculation of lost profits inherently uncertain." (*Greenwich S.F., LLC v. Wong, supra*, 190 Cal.App.4th at p. 766.) Skorheim's attempt to predict the future was in no way grounded in the past.

If a professional football team claims lost profits because a certain defensive lineman did not play for it the previous season, could an expert testify that in his opinion the key driver for success in the National Football League is quarterback sacks and, because the player was the best in the league in sacking the quarterback, the team would have won the Super Bowl had he played? Could another expert counter that testimony by expressing her opinion that the key to success is turnovers, and, because the player was not particularly adept at forcing turnovers, the team would not even have made the playoffs with that player? Should the court ask the jury to choose between the two experts? Or could the jury choose something in between and conclude the team would have reached, but lost, the Super Bowl? Or lost in the conference title game?

Similarly, if a first-time author sues a publisher for breach of a contract to publish a novel, could a witness who was an expert on the publishing business, literature, and popular culture testify that the novel, if published, would have become a national bestseller, won the Pulitzer Prize, and spawned a megahit movie with several blockbuster sequels? Could a jury award lost profits based on that scenario? Or could it compromise by finding the book would have been a bestseller but would not have won the Pulitzer Prize, and would have spawned a moderately successful movie but no sequel?

781 *781 (14) World history is replete with fascinating "what ifs." What if Alexander the Great had been killed early in his career at the Battle of the Granicus River, as he nearly was? What if the Saxon King Harold had prevailed at Hastings, and William, later called the Conqueror, had died in that battle rather than Harold? What if the series of Chinese overseas discovery expeditions that two Ming Dynasty emperors sponsored, and that reached at least the east coast of Africa by 1432, had continued rather than stopped? Many serious, and not-so-serious, historians have enjoyed speculating about these what ifs. But few, if any, claim they are considering what *would* have happened rather than what *might* have happened. Because it is inherently difficult to accurately predict the future or to accurately reconstruct a counterfactual past, it is appropriate that trial courts vigilantly exercise their gatekeeping function when deciding whether to admit testimony that purports to prove such claims.

An accountant might be able to determine with reasonable precision what **Sargon's** profits would have been *if* it had achieved a market share comparable to one of the "Big Six." The problem here, however, is that the expert's testimony provided no logical basis to infer that **Sargon would** have achieved that market share. The lack of sound methodology in the expert's testimony for determining what the future would have brought supported the trial court's ruling.

(15) The Court of Appeal majority was concerned that "[t]he trial court's ruling is tantamount to a flat prohibition on lost profits in any case involving a revolutionary breakthrough in an industry." We disagree. Other avenues might exist to show lost profits. An expert could use a company's actual profits, a comparison to the profits of similar companies, or other objective evidence to project lost profits. **Sargon** itself argues that the record in this case contains evidence of specific lost sales and canceled contracts due to USC's failure to complete the study. Evidence of this kind might support reasonably certain lost profit estimates.^[7] The trial court's ruling merely meant **Sargon** could not obtain a massive verdict based on speculative projections of future spectacular success.

The trial court properly acted as a gatekeeper to exclude speculative expert testimony. Its ruling came within its discretion. The majority in the Court of Appeal erred in concluding otherwise.

782 *782 III. CONCLUSION

We reverse the judgment of the Court of Appeal and remand the matter to that court for further proceedings consistent with this opinion.

Cantil-Sakauye, C. J., Kennard, J., Baxter, J., Werdegar, J., Corrigan, J., and Liu, J., concurred.

[1] We express no opinion on the correctness of this ruling, which is not before us on review.

[2] The Court of Appeal explained that these figures were converted from Swedish kroner using the exchange rate in effect in 1998. Nobel Biocare acquired another implant company in 1999, which increased its market share and added products to its portfolio.

[3] The Court of Appeal explained that "Straumann, another comparator company for which there was no data in the record during the relevant period, had attained a 22 percent global market share in 10 years."

[4] The trial court had initially sustained USC's objection to this testimony on the basis that it was inconsistent with Skorheim's deposition, and **Sargon** had failed to provide notice of this testimony, thus depriving USC of the opportunity to cross-examine Skorheim meaningfully on the point. But it permitted Skorheim to present this testimony "to make a record."

[5] Recent United States Supreme Court decisions have referred to the trial judge's "'gatekeeper' role" (*General Electric Co. v. Joiner* (1997) 522 U.S. 136, 142 [139 L.Ed.2d 508, 118 S.Ct. 512]) or "'gatekeeping' obligation" (*Kumho Tire Co. v. Carmichael* (1999) 526 U.S. 137, 141 [143 L.Ed.2d 238, 119 S.Ct. 1167]). We have used the term "gatekeeping responsibility." (*People v. Prince* (2007) 40 Cal.4th 1179, 1225, fn. 8 [57 Cal.Rptr.3d 543, 156 P.3d 1015].)

[6] In *People v. Leahy* (1994) 8 Cal.4th 587, 604 [34 Cal.Rptr.2d 663, 882 P.2d 321], this court held that the "general acceptance" test for admissibility of expert testimony based on new scientific techniques (see *People v. Kelly* (1976) 17 Cal.3d 24 [130 Cal.Rptr. 144, 549 P.2d 1240]) still applies in California courts despite the United States Supreme Court's rejection, in *Daubert v. Merrell Dow Pharmaceuticals, Inc.* (1993) 509 U.S. 579 [125 L.Ed.2d 469, 113 S.Ct. 2786], of a similar test in federal courts. Nothing we say in this case affects our holding in *Leahy* regarding new scientific techniques.

[7] **Sargon** notes that the trial court had ruled that at least some of this evidence was insufficient to support a claim of intentional interference with prospective economic advantage. The court found no evidence the lost sales were related to USC's actions or omissions. It is not clear how this ruling would have affected a lost profit claim. What is clear is that the ruling is not before us on appeal. Moreover, even if this type of evidence would not have been sufficient to support a lost profit claim in this case, similar evidence might support such a claim in some other case.

