

REVIEW

A not so brief history of the Oncogene Meeting and its Cartoons

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The existence of cellular oncogenes, first posited by Huebner and Todaro in 1969, became a reality in the mid-1970s and oncogenes emerged as a mature field in the early 1980s. The seeds of the Oncogene Meeting were planted at the Cold Spring Harbor RNA Tumor Virus Meeting where in the early 1980s the oncogenes discovered as passengers in the acutely transforming retroviruses began to take on a life of their own. By 1984, over 20 oncogenes had been discovered and it was evident that enough was known about the functions of their products to justify a meeting on oncogenes in their own right, and during the 1984 RNA Tumor Virus Meeting, George Vande Woude suggested that it was time to start a separate meeting on oncogenes. A discussion was arranged by the organizers among interested participants at the meeting, and it was decided to start a new meeting series in the tradition of CSH meetings to be called the Oncogene Meeting. George Vande Woude took the lead and arranged for the first Oncogene Meeting to be held in 1985 at Hood College, in Frederick, Maryland, close to the newly formed Frederick Cancer Research Facility Basic Research Program that he had founded and was currently directing.

Oncogenes was a buzzword in the mid-1980s but we knew little about what most of them did except that they transformed cells and caused tumors in animals. At the first meeting in 1985, each session was devoted to a small number of oncogenes, which were grouped largely based on whether they were protein kinases or nuclear or cytoplasmic oncoproteins. In the ensuing 20 years it has become clear that oncoproteins have a wide variety of functions, and the study of oncogenes has spawned many new fields of cell biology. In consequence where once it was possible for a single meeting to cover everything known about oncogenes, and attract over 500 people eager to hear the latest (with sessions having up to 14 ten min talks (!), and the poster sessions being held in shifts under two or three large tents), now the term oncogene seems to be almost passé and the 20th meeting attracted barely 200 people (Supplementary Figure 1 shows the rise and fall of abstract numbers at the meeting from 1985 to 2004). Over 20 years, the

Oncogene Meeting served an enormously useful purpose, and many of those who spoke for the first time at the early meetings are now themselves leaders in the cancer field. Indeed, one could trace a number of very successful scientific lineages at the 20th Meeting. One vital feature of the Oncogene Meeting was the fact that it was for young investigators and most of the presentations were short talks given by postdoctoral fellows and graduate students selected from among those who submitted abstracts. Often this gave the individuals their first opportunity to talk at a major meeting. The promise of the cumulative discoveries in the cancer field, often first reported in short talks at the Oncogene Meeting, is now being borne out with the first approved drugs rationally targeted against oncogene products.

The first several meetings were run out of the Frederick Cancer Research Facility with the conference logistics being handled by Margaret Fanning (Conference Coordinator, PRI), without whom the meetings would not have been so successful. In 1988, the Foundation for Advanced Cancer Studies (FACS), a nonprofit entity with an advisory board consisting of a group of eminent cancer scientists headed by George Vande Woude, was set up to oversee the organization and sponsorship of the Oncogene Meeting. Initially, the two meeting organizers were chosen by George Vande Woude and Tony Hunter and, in what became an annual ritual, they were invited to stay at George's cattle farm in Virginia to select the short talks and arrange the program. In the few spare minutes between reading abstracts, the organizers were usually asked to help out on the farm, often in unsuitable clothing, but the compensation was the great beef that one ate. The initial meeting was held at Hood College, a private liberal arts college in Frederick, Maryland, with everyone staying in the dorms. The relative isolation of Hood College and the fact that there is little to do in Frederick, which is 40 miles from Washington DC, meant that everyone was obliged to listen to and talk science, and this ensured interactions among attendees and led to many fruitful collaborations and new ideas. In 1985, the facilities at Hood College were less than optimal for a large meeting in July, with a lack of air conditioning being a major problem and the auditorium being too small to accommodate everyone. Over the years, the facilities at Hood College were upgraded, and by 2004 it had become a premier conference facility. In addition, the meeting was moved from the middle of July to the middle of June to avoid the oppressive July heat and

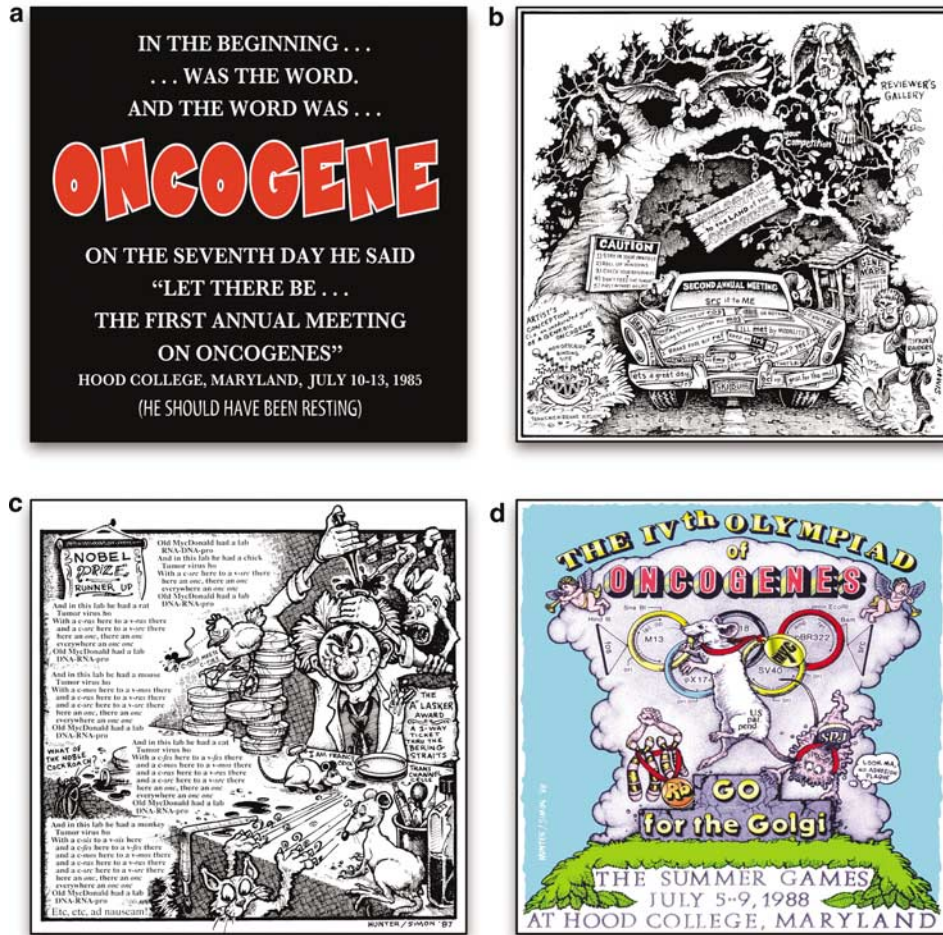


Figure 1 In the early days BCEWO (Before the Current Era of Widespread Oncogeneism), when all our heads spun with new insights and discoveries being announced each month, laboratories could establish themselves with the discovery of a new oncogene. To parody this, I drew a beauty contest cartoon wherein each of the established leaders in the field featured their claim to fame on the sash gracing their comely ‘chests’. Another cartoon mutated the cast into the animal model source of their particular oncogene(s). Within a few years what was expected to be the discovery of a few critical genes had become an avalanche of acronyms representing genes from across the cell’s genetic spectrum. I was and still am completely confused by this cascade that began like a snowmelt trickle then swept us over Niagara Falls. The honeymoon was over. The Oncogene MEETING was not only born it was enshrined, a temple on a mountain of oncogenes, and I was in on the ground floor with an opportunity to exchange humorous cartoons for cash. Sweet. The Oncogene Meeting was seasonal work for me. Once the abstract book cover was completed and the T-shirts sent east I moved on to new projects, but come February I would get a call from Margaret Fanning, George Vande Woude’s meeting coordinator, without whom the early meetings would never have happened. She would remind me that it was time to come up with a new take on oncogenes. Again and again I was confronted with the question: What’s funny about oncogenes? (a) *First Meeting, 10–13 July 1985*. In the last decade of the second millennium, Tony Hunter decided the Oncogene Meeting needed a T-shirt for the first meeting in 1985 – the ritual of T-shirt art began with the second meeting in 1986. The opportunity to create a revisionist history of the meeting led me, the not-so-intelligent-designer, to eschew cartoons for text uttered in the dark void that would establish the Oncogene Meeting as divinely inspired and I as its prophet. (b) *Second meeting, 8–12 July 1986*. This was easy – oncogenes were hidden in the dark forest. You could hike in or like the heroes of yore, you could ride. Modern dudes rode in heavy chrome-encrusted 2-door sedans with lots of trunk space, pasted with bumper stickers. Enter at your own risk: Land of the Oncogenes. Rifkin’s raiders was an allusion to Jeremy Rifkin, who at the time was vocally opposed to genetic manipulation. (c) *Third meeting, 7–11 July 1987*. Old MycDonald’s dogmatic refrain: DNA RNA PRO became RNA DNA PRO as a subtle reference to retroviruses not as an indication that we were smoking anything as we versified. The ‘farmyard’ animals were obviously inspired by the sources of retroviral oncogenes. (d) *Fourth meeting, 5 July–9 July 1988*. Another design? What is funny about oncogenes? Where is the joke in this? I asked Tony was there anything in the research or among the researchers that could be turned to the silly side. There were the Olympics and the growing list of Oncs being discovered. Oncogenetics was a competitive field, surely there were no winners or losers, but why should that stop us. The meeting hosts could stick their necks out and choose winners. I just wanted to draw a jumping mouse, pumping all four of its legs doing the in-zone victory dance: The IVth Olympiad of Oncogenes.

humidity. Up until 1997, the meeting continued to take place annually at Hood College, but starting in 1998 the meeting was held in alternate years at the Salk Institute in La Jolla, California. Over the years FACS disbursed

any profits from the meeting as postdoctoral fellowships through the Life Sciences Research Foundation. Many traditions were established during the early meetings, and the banquet on Friday night followed by energetic

dancing to a live rock band and the culminating Maryland crab feast on Saturday evening were always eagerly anticipated.

The spirit of the Oncogene Meeting was always captured by the irreverent cartoons that graced the abstract book covers and the chests of many of the participants, a tradition that started with the second meeting. The Oncogene Meeting cartoons reflect the discoveries and changing emphasis in oncogene and cancer research over the 20 years from 1985 to 2004. Each cartoon has incredible detail, and has to be studied carefully for the many scientific allusions and satirical comments on the oncogene/tumor suppressor gene field and how science is conducted. Jamie Simon was always responsible for the inspiration and I tried to make sure that any scientific references/acronyms had been accurately parodied. Jamie Simon's recollections of the times and his creative processes that led to the cartoons are included in the figure legends in his inimitable style.

The first Oncogene Meeting, held at Hood College 10–13 July 1985, organized by Mariano Barbacid and Mike Wigler, was a huge success, despite the typically hot and humid July weather and the lack of air conditioning at Hood College. There was great enthusiasm, and it was quickly decided to hold a second

meeting in 1986. Although there was no cartoon or T-shirt for the first meeting, retroactively we made a T-shirt that was sold at the 10th Anniversary Meeting, with the caption 'In the beginning was the word... and the word was... ONCOGENE. On the 7th day he said 'Let there be the first Annual Meeting on Oncogenes'. (He should have been resting!)' (Figure 1a). Tony Hunter and Bill Hayward were chosen as the organizers for the 1986 meeting (8–12 July 1986), and Bill Hayward suggested that we should have T-shirts for the meeting, an idea he co-opted from a meeting he attended earlier that year. However, Bill was unable to find anyone to design or make the T-shirts, and I immediately suggested Jamie Simon, the illustrator at the Salk Institute with a rare talent for cartoons, who had already created cartoons for the abstract book covers of the 1983 and 1984 RNA Tumor Virus Meetings at Cold Spring Harbor.

In thinking about a theme for the T-shirt and abstract book for the 1986 meeting, Jamie came up with the idea of using the burgeoning number of three-letter oncogene names to create bumper stickers (Figure 1b). The T-shirts were hand silk screened by Dale McLeod, a surfer friend of Jamie's. In the cartoon the car is entering the perilous 'Land of Oncogenes', and the

Figure 2 (a) *Fifth meeting, 27 June–1 July 1989.* The design came from seeing a shirt at my son's indoor soccer game. Monopoly parodies were popping up all over in the late 1980s. Oncopoly! It just rolls off the tongue and looks great on a board game. There were jokes waiting in the cards and on the properties. The subject was perfect. One problem. Once the design was ready to publish and print, it was submitted for what I thought would be a cacophony of 'at-a-boy' 'way-to-go-bub' 'brilliant-as-usual' cheers. But nooooo. The FACS lawyer was one of the reviewers. What's a lawyer doing reviewing my stuff. I mean only to delight not offend, though occasionally I do offend and delight in it. I wasn't young but I was naïve. 'No' the lawyer said. We couldn't do it due to the risk of being sued by the manufacturer of Monopoly. A new design was needed and in a hurry. But I wasn't going to toss this sweet piece out. No way. I put on my laboratory coat (stole it from Tony – he only wore shorts and T-shirts) and called the publishers. 'Hello, Parker Brothers, how may I direct your call?' 'This is Dr Jamie Simon of the Salk Institute. I would like to report a violation of the Monopoly copyright.' 'One moment allow me to connect you with our legal department.' (uh oh lawyers) 'How may I help you, Dr Simon?' 'Allow me to explain that as an institution dedicated to discovering a cure for the modern scourge, cancer, we scientists and our fellow travelers, spend our lives attempting to alleviate the suffering of others and on occasion we gather to share our knowledge, again for the good of society. At these meetings, we enjoy a bit of humor by producing parodies of different topical subjects. This year, we have produced a very clever and respectful version of your board game Monop...' 'O.K. Cut to the chase Dr Simon. I can't very well deny legitimate science a bit of fun at our expense, but I can require you to limit your activities. What do you want.' 'uh, well we'd like to uh' and so forth. Parker Brothers sent George Vande Woude and company a contract requiring us to limit the number of shirts and books for the meeting to the exact number of registrants and to earn no profits from the sale of the said shirts. FACS signed and I swear (in four languages) we kept to the agreement. I got away with my impersonation of Robert Gallo and reaped the rewards. George invited my family and I to the meeting! We took a red-eye to Washington and moved in with Marge Strobel, my wife's former roommate and a dear family friend. She didn't have air conditioning. Maryland in late June is underwater all the time whether owing to rain or heavy humidity. Everybody oughta just go naked and leave their clothes in waterproof containers until fall. Still we had a great time. The meeting food and drink was incredible. The meeting people were ridiculously fun. When George asked me to bring slides of my other outrages I didn't see the train a comin' – I was to give a lecture – 'On what? Why Oncogenes are funny?' 'No' was not an option. I utilized Tony, sitting on the edge of the stage as a translator and comic foil. I donned all four oncogene shirts and stripped whereas telling tales true and embarrassingly embellished. (b) *Sixth meeting, 26–30 June 1990.* Everywhere you turned it seemed there was a new oncogene. Under every cellular stone. Was there no relief? Protect us oh not-so-intelligent designer! What has evolution wrought? Alas, there were heroes who had been salvaging us all along and now I could reduce them to mere cartoons – the Anti-Oncs. Showdown at the Onco-Corral was 'Maverick', an old TV show from the 1960s, later a movie (1994) with Mel 'Road Warrior' Gibson (smile for your mug shot). Gamblers in small black hats and pencil thin mustaches, cowboys in big white hats, and bar maids with big evolutionary bust lines with good hearts to boot. Yep that got me in a wee bit o' trouble with a few very intelligent ladies, but then this is my cartoon and by definition cartoons are Freudian slips on banana peels. My heart apologizes whereas my mind rejoices in back flips of giddy delight. (c) *Seventh meeting, 24–29 June 1991.* 'The Wizard of Onc – Surrender your genes!' Was the wicked witch a patent lawyer? Had the Omnipotent Wizard of Onc finally run dry of oncogenes? In 1991, Kansas lost the toss to Frederick, Maryland, and Dorothy and TATA (Toto) would never go home. (d) *Eighth meeting, 23–27 June 1992.* My kids had a collection of 'Where's Waldo' books. Fortunately one of Margaret Fanning's crew had kids and Waldo books too. She suggested a Waldo theme and thus Where's Onco, surrounded by a lot of Onco-heads and other associates: Hunter, Sefton, George V da W, Renato, Michael J, Harold, Joan, Peter V, Jon C, etc. (key is available in Supplementary Information). Each design holds for me special little pleasures: who to caricature, hand drawn line or computerized Bezier, the all tormenting boundaries, would it translate to silk screen, limited palette or 6.7 million color possibilities, polyester transfer from CAD. Oncopoly had been the first computer drawing and print. It was followed with three hand drawn and dye painted designs: Showdown at the Onco-Corral, The Wizard of Onc, and Where's Onco. In 1993, I began scanning drawings and adding text, design elements and color using a Mac.

driver (TH) and the passenger (BH) are looking out of the windows apprehensively at the oncogene jungle. This was the first of many Oncogene Meeting cartoons with recognizable caricatures of scientists in the oncogene field. The T-shirts were very popular and the order of 200 rapidly sold out.

The 1987 Meeting (7–11 July 1987) was organized by Steve Hughes and Saburo Hanafusa. The Myc oncogene was still a hot topic, and Tony Hunter came up with the idea of ‘Old MycDonald’, with Jamie Simon providing the lyrics (Figure 1c). T-shirts were demanded and we sold all 500 that were printed.

The 1988 meeting (5–9 July 1988) was organized by Chuck Sherr and Arnie Levine. The year 1988 was the year of the Seoul Summer Olympics, and I suggested the Olympics theme for the cartoon (Figure 1d). The gold medal winner was Phil Leder’s MMTV-Myc mouse, for which he had applied for a patent in 1984 (the controversial ‘oncomouse’ patent was awarded in 1988). The silver medal winner was the human Ras oncogene, which had been the first human oncogene cloned in 1982 and the bronze medal winner was the retinoblastoma suppressor protein, whose gene was cloned in 1986.

The 1989 meeting (27 June–1 July 1989) was organized by Peter Vogt and Ray Erikson. The cartoon theme was ‘Oncopoly’ – the oncoproteins are carefully

arranged in order of molecular weight to mirror increasing property value, although I am not sure that many people noticed (Figure 2a).

The 1990 meeting (26–30 June 1990) was organized by Ed Ziff and Bart Sefton. The cartoon theme was ‘Oncs versus Anti-Oncs’ (Figure 2b). At the time the concept that oncoproteins and tumor suppressor proteins antagonized one another in growth control pathways was emerging. Indeed, the discovery of the retinoblastoma/E1A interaction and cell cycle-dependent phosphorylation of Rb, and the finding that p53 was a tumor suppressor had all first been reported in 1989.

The 1991 meeting (25–29 June 1991) was organized by Joan Brugge and Tom Curran. The cartoon theme was ‘The Wizard of Onc’, featuring several recently discovered genes (Figure 2c). The Tinman’s desired gene MyoD (muscle) was cloned in 1987; The Strawman’s gene, neuronal Src (brain), was discovered in 1985 and cloned in 1987, and the Lion’s gene, Spi(ne) (courage), now usually known as PU-1, was reported in 1988).

The 1992 meeting (23–27 June 1992) was organized by Jon Cooper, Ed Harlow and Inder Verma. The cartoon theme ‘Where’s Onco’, is an obvious take off on the children’s Where’s Waldo pictorial search game (Figure 2d). The cartoon has several recognizable caricatures of scientists in the oncogene field.

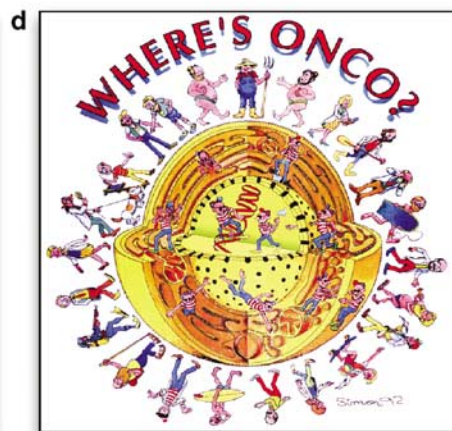
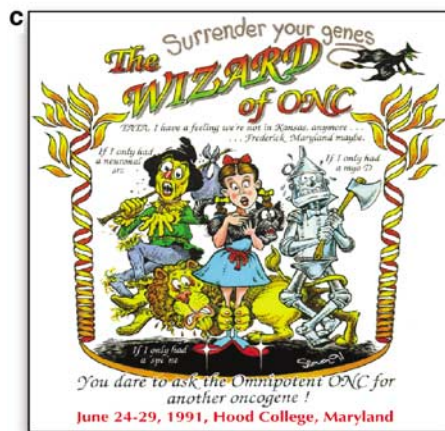
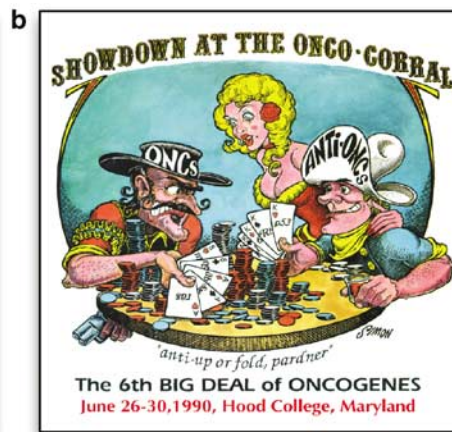
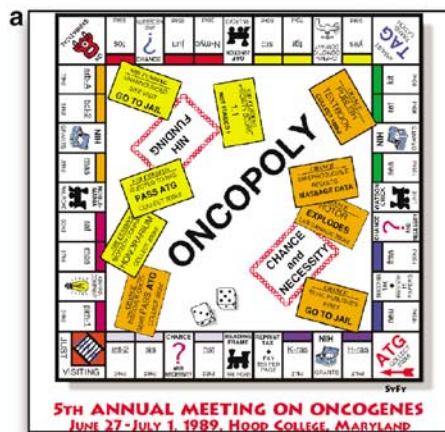




Figure 3 (a) *Ninth meeting, 22–26 June 1993*. The Dancing Oncogene: Shiva was hand drawn; the rest computer drawn curves and text. I received a letter criticizing my use of Shiva who is, to my chagrin, more than a simple major deity in the Hindu Pantheon, but also a deeply personal household god to some Hindu families. I defended my treatment of Shiva then and I do now – I love the ambiguous beauty of Shiva: soft feminine yet strong masculine, like Elvis in ‘Blue Hawaii’, giver of life – deliverer of death, a strong and sensual dancer balancing on man’s bleached skull. My silly little cartoon is my humble gift to Shiva, a gift of paper and ink. I will not leave Shiva alone. (b) *Tenth meeting, 21–25 June 1994*. Ten years on and a summer break at Camp Oncogene. Hand drawn with computer background and color. Perfect for T-shirts. They didn’t. It took 10 more years to recover my own silk screening costs! Goodwill gifts to visitors: ‘Where’s Camp Oncogene?’ ‘Just put on the shirt’. (c) *Eleventh meeting, 20–24 June 1995*. The Phosphate Wizard. In 1968, The Who’s Tommy was one of many perfect works: orchestral, power trio, cynical and a short but stunning performance in the film about messing up Yazgur’s farm: ain’t got no inhibitions can’t hear no competitor’s call, that deaf dumb and blind gene sure plays a mean phosphate ball. It had a great album cover too. All computer drawn with full color gradients and blends. The shirts were made with heat pressed xerox polyester images. My silk screener operated the press although, as a silk screener, he found the process to be antiart. Afterwards he swore his soul was tainted and he would never touch the devil’s iron again. (d) *Twelfth meeting, 18–22 June 1996*. The Rock Oncogene Tour featuring the King. Rock on baby! ‘I’ve got a replication complex in my growth fork!’ Are you Leucine Tonight? • G; Blues • Big Hox O’ Love • Vav a Las Vegas • Blue HLHawaii • Sispicious Binds • Love me Zinc-Finger • Blue Suede SH2s • Chromosome Break Hotel • Don’t Be Chimeric • Burning (Denatured) Love • That’s All Ret Mama • Jailhouse Ros • ‘You ain’t nothin but a Homeo Dog, expressin all the time. They said you was an antionc. That was just a line. You’re a dominant-negative mutant and you ain’t no gene of mine’. My twisted helices dig your DAPI blue bilayered nucleus and do a major groove on your DNA, baby.

The 1993 meeting (22–26 June 1993) was organized by Web Cavenee, Bob Eisenman and Tony Pawson. The cartoon theme was the ‘Dancing Oncogene’ illustrating Shiva, who is sometimes known as the God of Transformation, being associated with creation that comes out of destruction, reflecting the antagonistic roles of tumor suppressors and oncogenes in cancer (Figure 3a).

The 10th Anniversary Oncogene Meeting in 1994 (21–25 June 1994) was organized by George Vande

Woude, Inder Verma, Chuck Sherr and Tony Hunter. The ‘Camp Oncogene’ theme was Joe Lipsick’s idea to capture the rigors of the meeting, including Nuc’s versus Cyto’s sporting activities, which were a ritual on the one free afternoon at the meeting, organized with great enthusiasm by Joan Brugge (Figure 3b). The special feature of the meeting was the final afternoon Plenary Session, which was open to the public and was recorded for broadcasting by the HTN Network, a copy of which may still be available. The speakers (Mike Bishop, Arnie



Figure 4 (a) Thirteenth meeting, 18–21 June 1997. Src Wars – The Enzyme Strikes Back. Not too long ago, in a laboratory not far enough away. George Vande Woude as Yoda, what could be more apropos? J. Michael Bishop was cast as Jabba the Oncogene’s evil advisor (why? Good people make great villains). So who is Jabba really modeled after? I’ll never tell. (b) Fourteenth meeting, 24–27 June 1998. The White Cell Line’s Tumoranic ran aground in La Jolla, winning awards for Best Meeting, Best location, Best date and of course Best original song: Here there and everywhere it goes on and on and on and on and on and on. From now on, the meeting would alternate between the sweltering heat and humidity of Frederick, Maryland and the sunny beaches and warming inviting waters of La Jolla, CA. (c) Fifteenth meeting, 22–26 June 1999. The annual party goes returned to Maryland to ‘Meet at Geo’s’ for pombeer and blue crabs at the greasy spoon of science. The menu is my fantasy a scientist’s gourmet feast based on too little knowledge and too much imagination. (d) Sixteenth meeting, 22–25 June 2000. Onco\$cheme. The meeting had always offered excellent food, fine wine and beer and a live band with dance floor. Having known what wallflowers science males were and how very hot female scientists were to dance, I styled myself the house gigolo when the meeting was in La Jolla. The prevailing theory of ethanol as an antagonist of XY inhibitions was challenged at the banquet. Wine was served from an open tap yet the XY population would not venture out to the parquet floor where the XXs performed the forbidden dance with the formidable house gigolo with his slicked back hair, pencil thin mustache and Italian leather shoes. However, once the beer bar was opened a change came over the shy introverted males. Hair sprouted on their chins and chests. Chairs were tossed aside and they came forward to claim their peers and colleagues. My work was done. Cast aside, alone with a beer and sore feet, I was pleased to see the Hard Cell Café come to life before my eyes. Wine is for cultured conversation. Beer is for cooling hot blood. It’s gotta be the carbs – fuel to burn.

Levine, Peter Vogt, Tony Hunter, Frank McCormick, Joan Brugge and Harold Varmus) highlighted progress in the elucidation of the molecular basis of cancer and took a forward look as to how this understanding could be used for the development of targeted cancer therapies.

The 1995 meeting (20–24 June 1995) was organized by Sara Courtneidge, Joe Lipsick and Tom Parsons. The cartoon theme ‘Phosphate Wizard’ was a take off on The Who’s Pinball Wizard from Tommy, which started on Broadway in 1993 (Figure 3c). The details of the mitogen-activated protein (MAP) kinase pathway,

discovered in 1987, were rapidly being elucidated (e.g. ERK cloning 1990, Raf-MEK 1992, Ras-Raf 1993), and the pinball flippers are an accurate representation of what was known at the time, about nuclear signaling by the ERK MAP kinase pathway following its activation by a receptor tyrosine kinase, such as the EGF receptor.

The 1996 meeting (18–22 June 1996) was organized by Alan Bernstein, Mike Cole and Steve Martin. The cartoon theme was ‘The Rock On-cogene Tour’, with ‘original’ lyrics by Jamie (Figure 3d). Rock and Roll was enjoying a resurgence at the time and was the music we had both been brought up on.



Figure 5 (a) *Seventeenth meeting, 20–23 June 2001*. Stanley Kubrick's 2001: a Space Odyssey was the heroic epic of the 1960s: man versus his creation (HAL) in search of his creator (Aliens). Granted Kubrick's A Clockwork Orange (1971) was probably the more accurate view of man's future, my generation revered 2001 – slow (plodding), stylized, cast without star-power and orchestrated with musical brilliance. The Annual Oncogene Odyssey was simply the only appropriate subject for the turn of the millennium. Scientific apes discovering the mechanisms of cellular function under the tutelage of the jet black monolith that would be George. Yes I overstated George's influence, but that is ultimate function of the court painter – present his patron as a transcendent being both powerful and supremely intelligent. (b) *Eighteenth meeting, 21–24 June 2002*. 2001: a Space Odyssey may have been the climactic movie of the 1960s (the best of the 1960s was Kubrick's Doctor Strangelove), but Tolkien's Trilogy was the epic novel of that generation (Lenny Bruce's How win Friends and Influence People was its handbook). Lord of the Genes was midnight at the laboratory bench with a bunsen burner lit with the hoary fires of Mordor. 'One meeting to rule them, One meeting to bind them all, One meeting to bring them all, And in La Jolla (of all places) bind them, In the Land of Oncogenes. Where the sequences lie.' (c) *Nineteenth meeting, 18–21 June 2003*. Keeping with the theme of movies that appeal to the child in all scientists (the majority of whom are still battling their high school demons – mine wears nasty fishnets with red stiletto heels and a Victoria Secret Miracle that just kills) I chose to pervert the wholesomeness of Hairy Potter with Austin Powers' bad teeth in the long awaited sequel: the Gene Who Snagged Me. The design began with the request to use the buildings of Hood College as this was the last go round in Frederick. I had a grand time cartooning chimeras of Potter and Powers characters – the Fat Bastard as Hagrid (I want to eat your baby dragon!). (d) *Twentieth meeting, 16–20 July 2004*. The final farewell was not a good-bye, rather it was a recognition that a change was due. A new beginning and a new look for the future of Oncogenics: Xtreme Onco Makeover. Let the nip and tuck begin. I hear that there is something new coming for those who can never get enough meeting fever. There is never an end. Actually there is and this is it! SyFy aka Jamie Simon. Please remember, nothing is sacred, especially in science. Enjoy your wit!

The 1997 meeting (18–21 June 1997) was organized by Doug Lowy, Jean Wang and Mike Weber. The cartoon theme 'Src Wars – The Enzyme Strikes Back' was a tribute to the Lucas classic movie Star Wars Episode V: The Empire Strikes Back originally released in 1980, and to the Hunter/Eckhart group's long time interest in Src (Figure 4a).

At the 1997 meeting, we decided that the next meeting should be held at the Salk Institute, in order to afford the west coast community easier access to the meeting,

with the idea that if this were successful the meeting would alternate between Frederick and the Salk. The 1998 meeting (24–27 June 1998) was organized by Ron DePinho, Martine Roussel and Dan Donoghue. The 'Tumoranic' cartoon theme was inspired by the recent release of the movie Titanic in 1997 – the figures on the prow of the FACSS. Tumoranic are caricatures of the organizers (Figure 4b).

The 1999 meeting (22–26 June 1999) organized by Debbie Morrison, Sally Parsons, Tom Roberts and

Karen Vousden, moved back to Frederick. The cartoon (Figure 4c) paid homage to George Vande Woude's determination to make sure that no one at the meeting starved!

The 2000 meeting (22–25 June 2000), held again at Salk, was organized by David Foster, Martin McMahon and Ann Marie Pendergast. The cartoon theme was 'OncoScheme' was promoted by the amazing run up of the stock market to record highs in March 2000, which culminated in a crash in September 2000 (Figure 4d).

The 2001 meeting (20–23 June 2001) was organized by Morag Park, George Prendergast, Lu-Hai Wang and Nick Dyson. Inevitably, the cartoon theme was 'The Annual Oncogene Odyssey' in tribute to Stanley Kubrick's classic 1968 movie, with high anxiety mitosis (HAM) as the devious computer (Figure 5a).

The 2002 meeting (21–24 June 2002), the last to be held at Salk, was organized by Dafna Bar-Sagi, Gerard Evan and Alan Lau. 'The Lord of the Genes' theme was inspired by The Lord of the Rings movie trilogy, which had premiered in with 'The Fellowship of the Ring' in 2001 (Figure 5b).

The 2003 meeting (18–21 June 2003) was organized by Lynda Chin, Channing Der, Richard Jove and Bill Kaelin. The cartoon theme was Hairy Powers, a scary hybrid of Harry Potter (The Sorcerer's Stone 2001, Chamber of Secrets 2002) and Austin Powers (The Spy who Shagged Me 1999, Goldmember, 2002), two popular movie series (Figure 5c).

The 20th meeting (16–19 June 2004) was organized by Tony Capobianco, Debbie Morrison, Sheila Thomas and Tadashi Yamamoto. A program with a 'star' cast of speakers and chairs, with major figures from the past and present, had been put together in an attempt to revive the flagging fortunes of the Oncogene Meeting. Indeed, the 'Xtreme Onco Makeover' cartoon theme (Figure 5d) was taken from the eponymous TV show, which first aired in 2003, in the hope that this meeting might rekindle interest.

The 2004 Oncogene Meeting was a celebration of the enormous success of the oncogene field. The meeting began with a plenary session where some of the luminaries in the field reviewed the past and told new stories of where the field is going. Harold Varmus kicked the meeting off with a discussion of two topical areas of oncogene research – mouse models of cancer in which

the expression of defined oncogenes and tumor suppressor genes are manipulated in a tissue-specific fashion, and mutational analysis of STI targets in cancer. Peter Vogt, Suzanne Cory, Bob Weinberg and Tony Hunter each reminisced about what led them to make discoveries in the field, and what their findings had engendered in terms of understanding and the potential for cancer therapy. Renato Dulbecco, arguably the father of the oncogene field who turned 90 in 2004, joined the meeting through a video presentation, and gave a wonderfully lucid recollection of the early days of the studies of tumor viruses as cancer models that led to the discovery of retroviral oncogenes, and many key cellular growth regulatory proteins that are highjacked or blocked by the transforming proteins of DNA tumor viruses. In what proved to be the last ever session at the Oncogene meeting, the meeting concluded with plenary talks from Frank McCormick, Sara Courtneidge, Carlo Croce, Ed Harlow, Allen Oliff, Prem Reddy and Mike Wigler, predicting future directions for the field and illustrating how what we had learned was being and will be used to develop new cancer therapies.

The 20th Oncogene Meeting held at Hood College, Frederick, Maryland saw the end of an era. The attendance at the Oncogene Meeting had started to decline in 1997, and the number of abstracts had fallen to 225 by 2000, from a high of 478 in 1991. Despite heavy advertising and the outstanding program, the number of abstracts submitted to the 2004 meeting was only 140. Twenty years is a good run, but the word oncogene had lost its cachet, and given the waning popularity of the meeting, the FACS Board reluctantly decided to bring the Oncogene Meeting to an end. Phoenix like the meeting will be reborn under a new name, Mechanisms and Models of Cancer, which will be held at the Salk Institute in 2007 (<http://www.salk.edu/events/meetings/>) and alternate with the Cold Spring Harbor meeting of this name. Let us hope this meeting has an equally successful run, and that science reported at this meeting ultimately results in effective cancer treatments!

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Supplementary Information accompanies the paper on the Oncogene website (<http://www.nature.com/onc>).

*High resolution images of all the cartoons are available upon request from Jamie Simon (jsimon@salk.edu). A compilation of the "bumper stickers" from the 1986 meeting banquet is available upon request from Tony Hunter (hunter@salk.edu).