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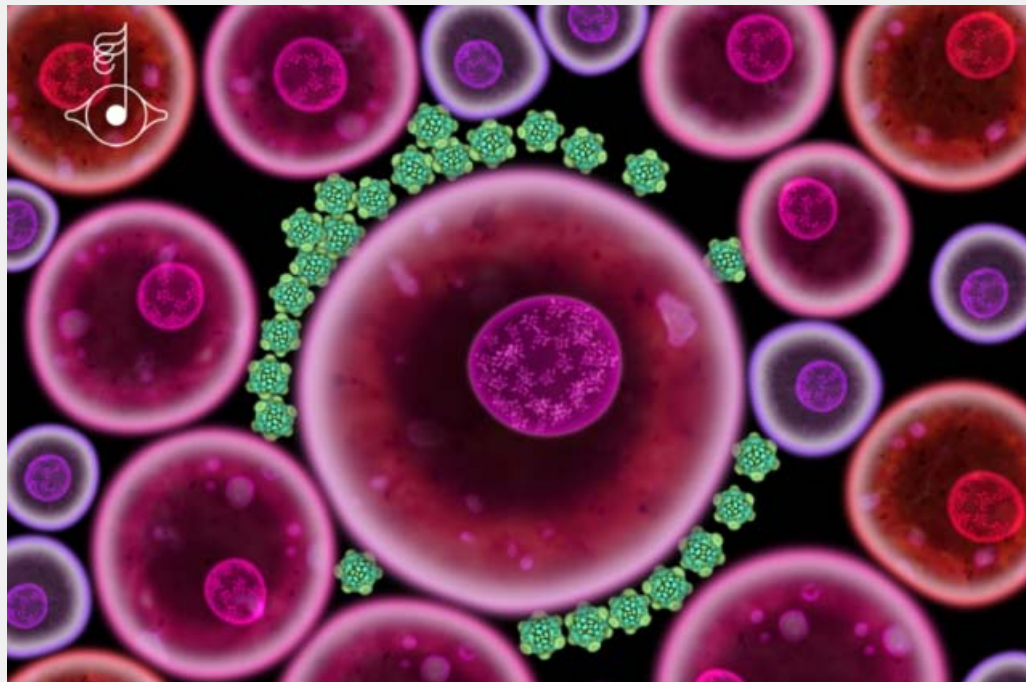
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12/08/2011 AppStore, bjork, cocos2d, composition, ecosystem, iPad, iPhone, music, physics, Scott Snibbe, softbodies, virus

Björk – Biophilia – Virus [iPhone, iPad, Sound]



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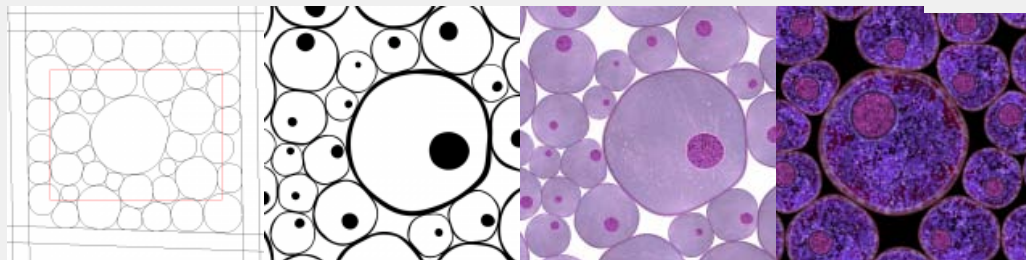


This week saw the release of 'Virus', the new in-app purchase from Björk's forthcoming 'Biophilia' app-album created in collaboration with Scott Snibbe and M/M (Paris). As expected the new Virus release does not disappoint. We are handed a mesmerising viral system that draws you into the beautiful interactive musical experience. As always we wanted to know more, so we got in touch with Scott and got some wonderful insight into the development of the app including early sketches, code/libraries, inspiration images and sketches by Bjork and Scott. Read on for details..

Virus

The 'Virus' was engineered from September, 2010 through July, 2011. The overall Biophilia project, including Virus, was engineered in Cocos2D for ease of transitions between song app experiences. Virus itself is a hybrid of several graphics and simulation models, and was programmed by Scott Snibbe and software engineer Graham McDermott. Scott build the first prototype (up to the images you see below from February). Then Graham worked for several months refining it. At the end Scott added a few tweaks including the DNA strand simulation and refined some elements of the physics, interactivity, and

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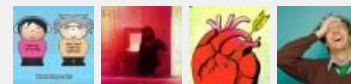
- 1.The Viruses are pressed together using an offscreen "trash compactor" that squeezes in from four sides.
- 2.Prototype of hand-drawn Ink look for Virus.
- 3.Rough early textures in a textbook style for Virus.
- 4.Virus textured with Drew Berry prototype textures, on its way to the final look.



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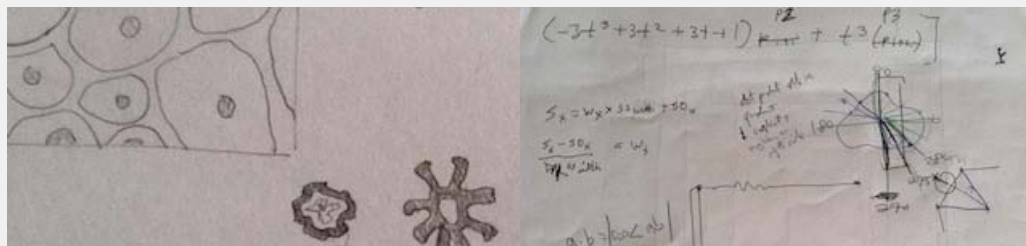
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Ed Auriea Efraín Adam

The core physics engine for cell movement is based on the unrestricted (but undocumented!) library JellyPhysics by "Walaber" (Tim FitzRandolph). The team modified this library and fixed various bugs to adapt to application. The cells are pressed together using an off-screen "trash compactor" comprised of four walls that push in from the sides to squeeze all the cells together.



1. Storyboard and concept sketches for Virus, clockwise from upper left: packed cells, singing nuclei, DNA attack the nucleus, DNA strands entering cell walls.
2. A page from Snibbe's notebook with calculations for cell physics.

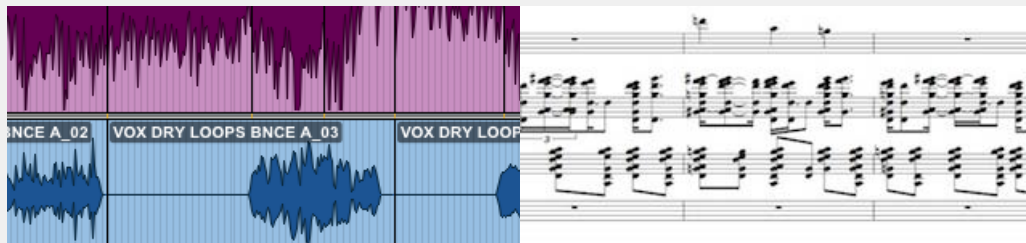
Physics for the nuclei is hand-done, and physics for the simulated DNA strands is accomplished with a custom spring and mass physics library Scott has worked on for about twenty years. "Physics engines are a bit like poetry engines in my opinion – to really get the precise behavior you want, you need to implement from scratch, or make significant changes. There are an infinite number of ways to perform simulations, even ones as simple as spring-and-mass."

The textures for cells are layers of custom textures created by Nathan Heigert, designer in Scott's studio. They are layered together and animated to create a richer, more life-like appearance, and there are specific textures for different scales. Scott points out that because Cocos2D is limited to OpenGL 1.1, the team had to use old OpenGL tricks for the blending modes, rather than custom shaders.

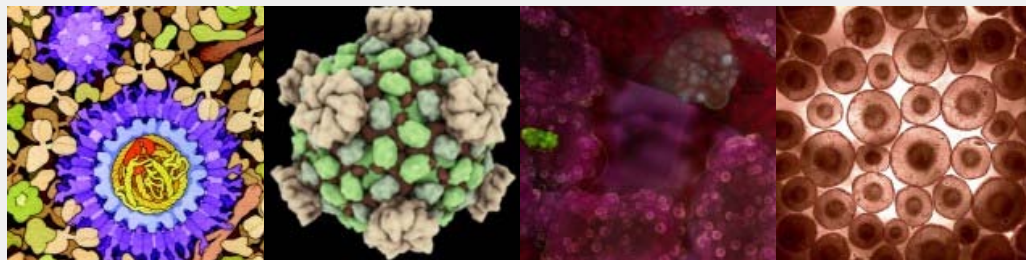


Rough sketch by Björk of the Virus score used to explain the song structure during early meetings.

Virus graphics and animations were created using Cocos2D sprites, animations, and texture sheets, and produced using Photoshop and After Effects. The audio for Virus and the other apps is created using the FMOD library, a robust audio library for gaming that can support hundreds of simultaneous mixed tracks, precise synchronization, and real-time DSP effects.

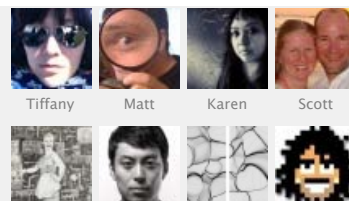


1. Protocols screenshot of vocal and hang tracks used for Virus' music logic to stretch or compress the duration of the song, and mark transitions during the infection and attack.
2. Page 22 of the traditional musical score for Virus, used for planning and synchronization.



Inspiration Images

1. David Goodsell Virus illustration – Virus inspirational illustration from talented bio-illustrator david Goodsell. Watercolor on paper.
2. 3D Virus model from Drew Berry, creative consultant to the project.
3. Images from video by Drew Berry of cells being infected.



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4. Microscopic photograph of stem cells under microscope.

Thanks to Scott for providing all these details. If you haven't already, make sure you download free Biophilia app from the AppStore (link below), including both the 'Virus' in-app purchase described here and Crystalline we mentioned few weeks back.

Platform: iPhone/iPad (Universal)

Version: 1.0

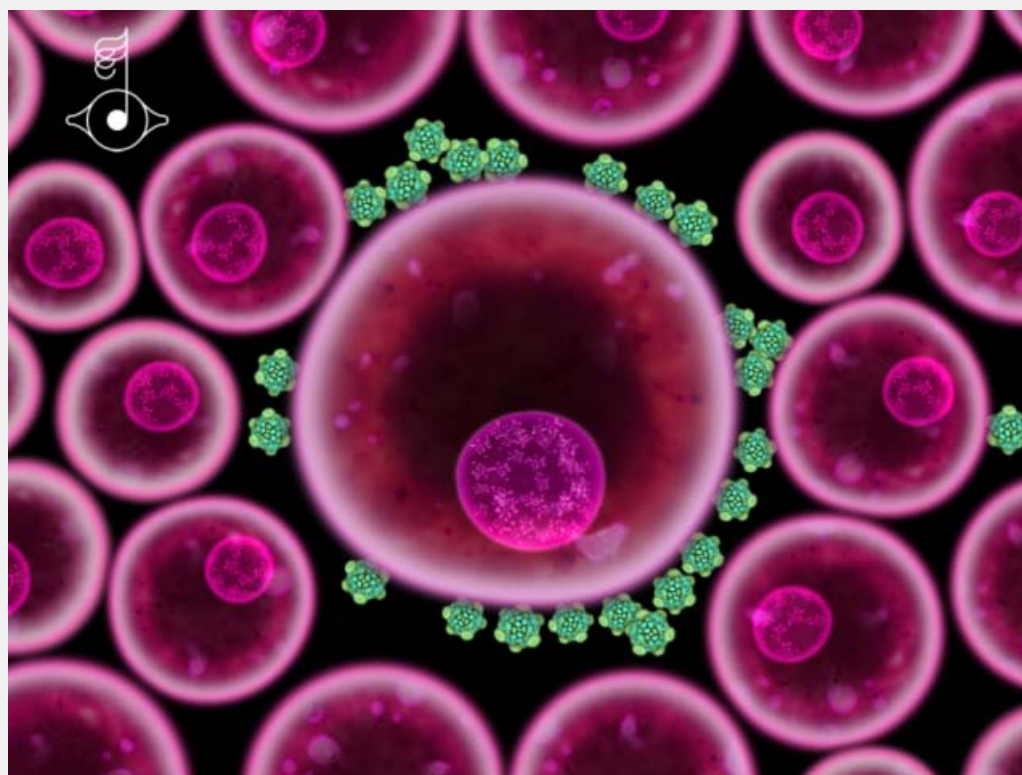
Cost: Free + \$1.99 per in-app purchase

Developer: Second Wind Ltd

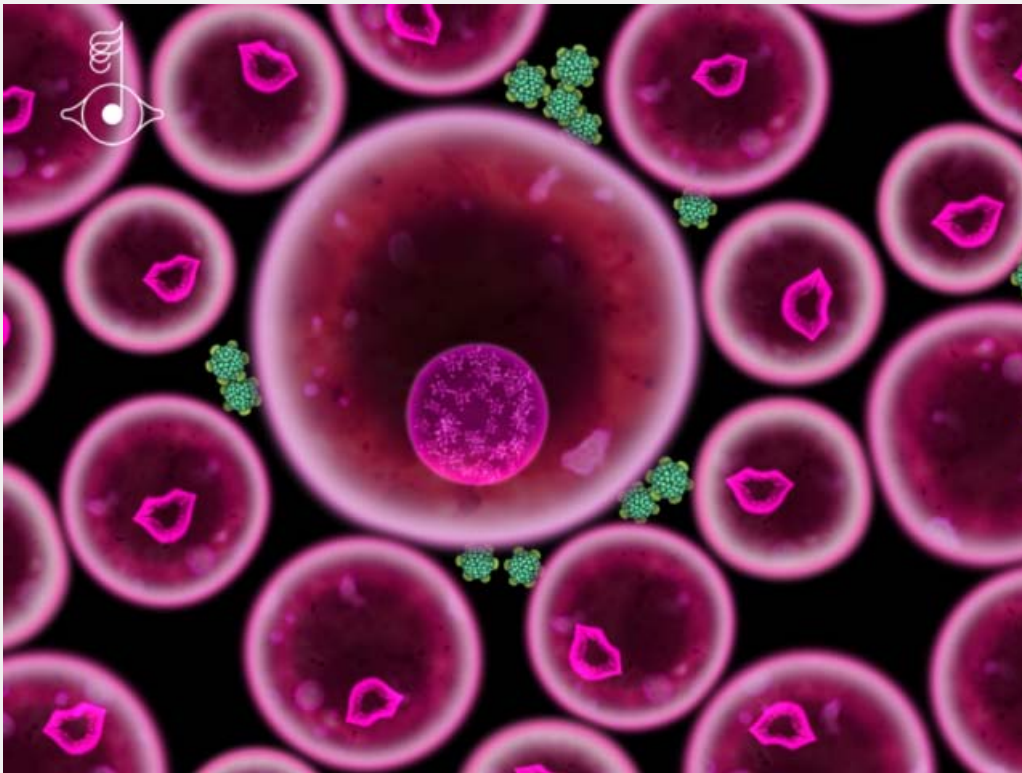




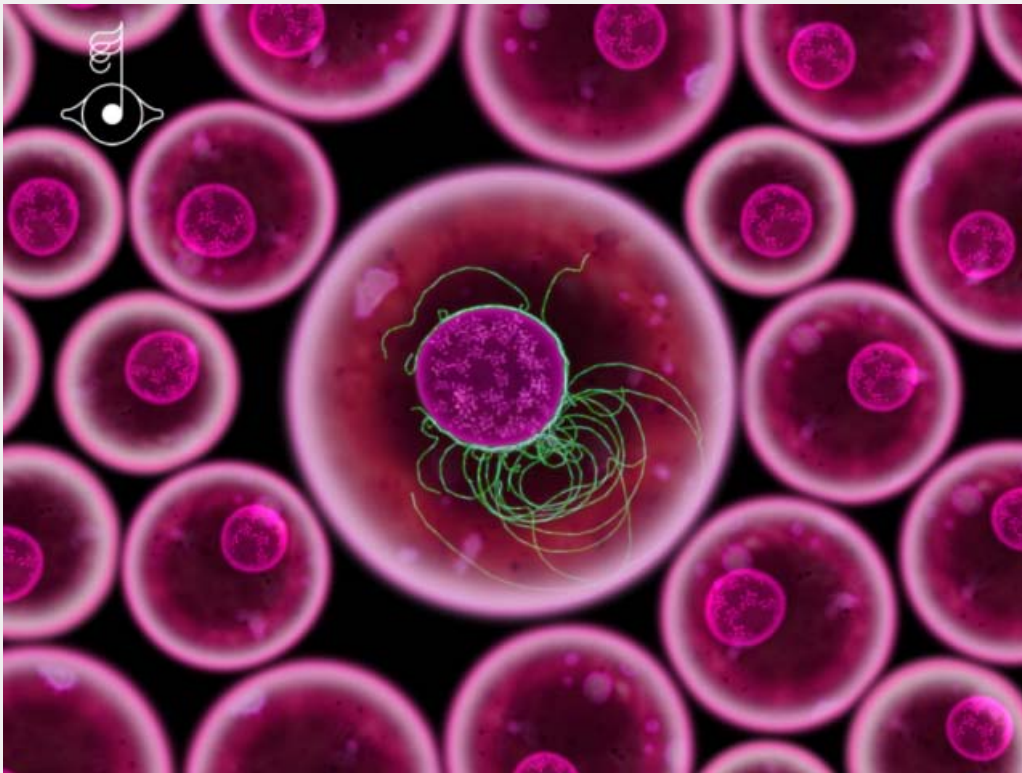
Screenshots:



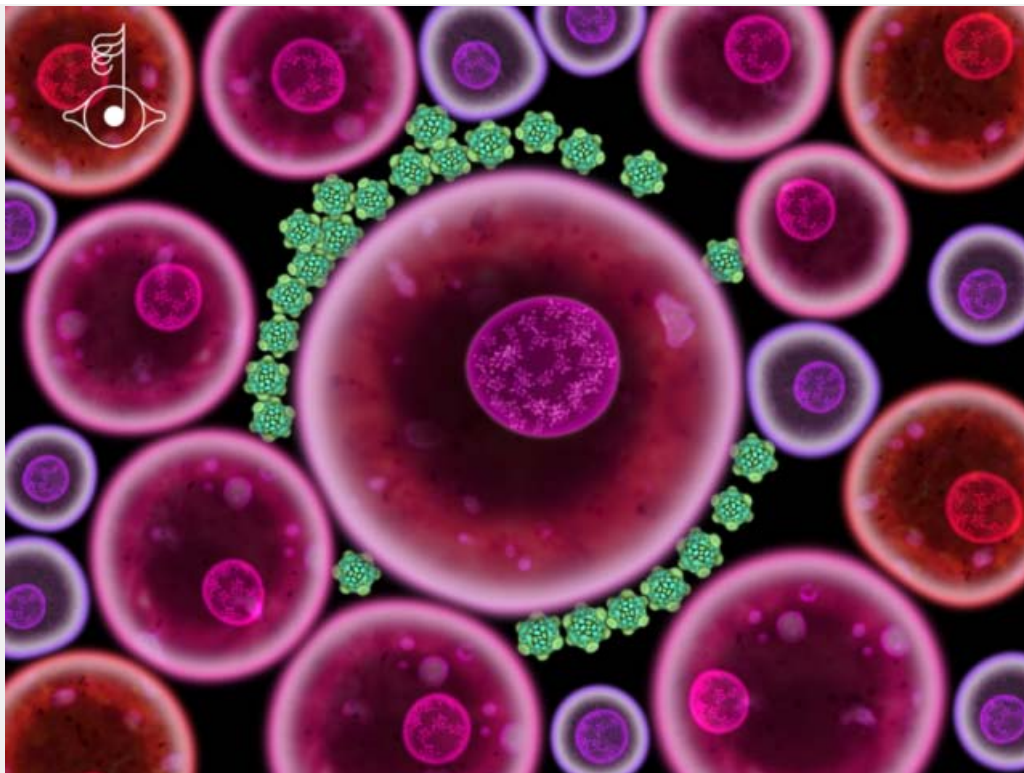
Viruses massing for attack of the mother cell.



Surrounding cells nuclei sing to the chorus as viruses mass menacingly on the mother cell.



DNA strands gracefully move in for the kill.



Viruses and DNA coexist happily in instrument mode, producing gameleste and hang samples.



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