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Touptek USB 2.0 Camera Sertioes ECMOS

Basic Characteristic

ECMOS adopt SONY Exmor CMOS sensor as the image-picking device and USB2.0 is used as the data transfer interface.
ECMOS hardware resolutions range from 1.2 MPix to 8.3 Mpix and come with the integrated CNC aluminum alloy compact housing.

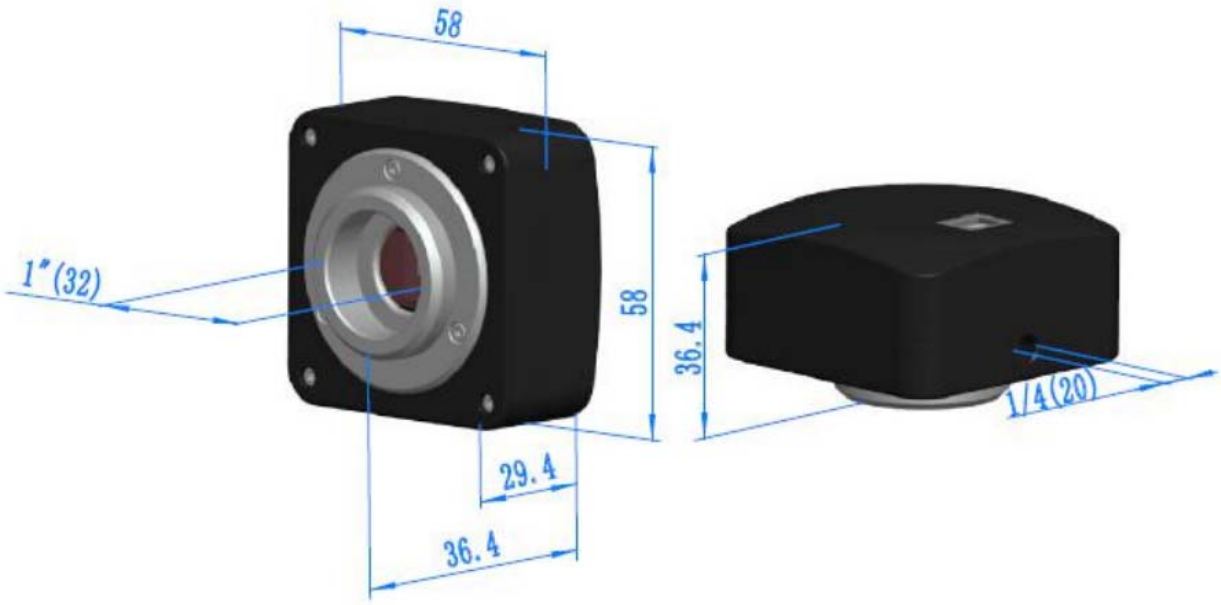
ECMOS comes with advanced video & image processing application ToupView; Providing Windows/Linux/ OSX multiple platforms SDK; Native C/C++, C#/VB.NET, Direct Show, Twain Control API;

TheECMOS can be widely used in bright field light environment and microscope image capture and analysis with higher frame rate.

The basic characteristic of ECMOS cameras are as follows:

- SONY Exmor, Exmor R(Back-illuminated), Exmor RSCMOS sensor with USB2.0 interface;
- Real-time 8/12/14/16bit depth switch(depending on sensor);
- Super high sensitivity up to 2040mV(IMX224);
- Ultra low noise and low power dissipation by using column-parallel A/D conversion;
- With hardware resolution among 1.2M to 8.3;
- Rolling Shutter or Global Shutter;
- Standard C-Mount camera;
- CNC aluminum alloy housing;
- USB3.0 5 Gbps interface ensuring high frame rates;
- With advanced video & image processing application ToupView;
- Providing Windows/Linux/Mac OS multiple platforms SDK;
- Native C/C++, C#/VB.Net, DirectShow, Twain, LabView

Sizes



Available Versions:

Order Code	Sensor & Size(mm)	Pixel(μm)	G Sensitivity Dark Signal	FPS/Resolution	Binning	Exposure
ECMOS08300KPA EP608300A(New)	8.3M/IMX274(C) 1/2.5"(6.22x3.50)	1.62x1.62	236mv with 1/30s 0.1mv with 1/30s	4@3840x2160 16@1920x1080	1x1 2x2	0.244ms~15s
ECMOS06600KPA EP606600A(New)	6.6M/IMX326(C) 1/2.9"(4.98x3.50)	1.62x1.62	236mv with 1/30s 0.1mv with 1/30s	5@3072x2160 6@2592x1944 6@3072x1728 7@2160x2160	1x1 1x1 1x1 1x1	0.244ms~15s
ECMOS05300KPA EP605300A	5.3M/IMX178(C) 1/1.9" (7.37x4.15)	2.4x2.4	425mv with 1/30s 0.15mv with 1/30s	5.5@3072 x1728 35@1280x720	1x1, 2x2	0.105ms~15s
ECMOS05000KPA EP605000A(New)	5.0M/IMX335(C) 1/2.8" (5.18x3.89)	2.0x2.0	505mv with 1/30s 0.13mv with 1/30s	6.4@2592 x1944 26.7@1296x972	1x1, 2x2	0.1ms~15s
ECMOS03100KPA EP603100A	3.1M/IMX123(C) 1/2.8" (5.12x3.84)	2.5x2.5	600mv with 1/30s 0.15mv with 1/30s	10.5@2048x1536 15@1920x1080	1x1	0.105ms~15s
ECMOS02000KPA EP602000A	2.0M/IMX290(C) 1/2.8"(5.56x3.13)	2.9 x2.9	1300mv with 1/30s 0.15mv with 1/30s	17@1920x1080	1x1	0.105ms~15s
ECMOS01200KPA EP601200A	1.2M/IMX224(C) 1/3"(4.80x3.60)	3.75 x3.75	2040mv with 1/30s 0.15mv with 1/30s	27@1280x960 54@640x480	1x1, 2x2	0.105ms~15s

C: Color; M: Monochrome;

Other Specification for ECMOS Camera	
Spectral Range	380-650nm (with IR-cut Filter)
White Balance	ROI White Balance/ Manual Temp Tint Adjustment/NA for Monochromatic Sensor
Color Technique	Ultra-Fine™ Color Engine/NA for Monochromatic Sensor
Capture/Control SDK	Windows/Linux/macOS/Android Multiple Platform SDK(Native C/C++, C#/VB.NET, Python, Java, DirectShow, Twain, etc)
Recording System	Still Picture and Movie
Cooling System*	Natural
Operating Environment	
Operating Temperature(in Centidegree)	-10~ 50
Storage Temperature(in Centidegree)	-20~ 60
Operating Humidity	30~80%RH
Storage Humidity	10~60%RH
Power Supply	DC 5V over PC USB Port
Software Environment	
Operating System	Microsoft® Windows® XP / Vista / 7 / 8 /10 (32 & 64 bit) OSx(Mac OS X) Linux
PC Requirements	CPU: Equal to Intel Core2 2.8GHz or Higher
	Memory: 2GB or More
	USB Port: USB2.0 Port
	Display: 17" or Larger
	CD-ROM

Packing Information

Packing Information of ECMOS Series Camera

Standard Camera Packing List			
A	Carton L:52cm W:32cm H:33cm (20pcs, 12~17Kg/ carton), not shown in the photo		
B	Gift box L:15cm W:15cm H:10cm (0.5~0.55Kg/ box)		
C	ECMOS series USB2.0 C-mount CMOS camera		
D	High-speed USB2.0 A male to B male gold-plated connectors cable /2.0m		
E	CD (Driver & utilities software, Ø12cm)		
Optional Accessory			
F	Adjustable lens adapter	C-mount to Dia.23.2mm eyepiece tube (Please choose 1 of them for your microscope)	108001/AMA037 108002/AMA050 108003/AMA075
		C-mount to Dia.31.75mm eyepiece tube (Please choose 1 of them for your telescope)	108008/ATA037 108009/ATA050 108010/ATA075
G	Fixed lens adapter	C-mount to Dia.23.2mm eyepiece tube (Please choose 1 of them for your microscope)	108005/FMA037 108006/FMA050 108007/FMA075
		C-Mount to Dia.31.75mm eyepiece tube (Please choose 1 of them for your telescope)	108011/FTA037 108012/FTA050 108013/FTA075
	Note: For F and G optional items, please specify your camera type(C-mount, microscope camera or telescope camera) , ToupTek engineer will help you to determine the right microscope or telescope camera adapter for your application;		
H	108015(Dia.23.2mm to 30.0mm Ring)/Adapter rings for 30mm eyepiece tube		
I	108016(Dia.23.2mm to 30.5mm Ring)/ Adapter rings for 30.5mm eyepiece tube		
J	108017(Dia.23.2mm to 31.75mm Ring)/ Adapter rings for 31.75mm eyepiece tube		
K	Calibration kit	106011/TS-M1(X=0.01mm/100Div.); 106012/TS-M2(X,Y=0.01mm/100Div.); 106013/TS-M7(X=0.01mm/100Div., 0.10mm/100Div.)	

Optional Adapters

Microscope Camera	 ECMOS+AMAXXX(23.2mm Adapter)  ECMOS+FMAXXX(23.2mm Adapter)
Telescope Camera	 ECMOS+ATAXXX(31.75mm Adapter)  ECMOS+FTAXXX(31.75mm Adapter)

About the ECMOS06300KPA and IMX 178LQJ

ECMOS06300KPA uses IMS178LQJ sensor. The Sony IMX178LQJ sensor is a back-illuminated structure CMOS image sensor , supporting three formats of 4:3, 5:4, and 16:9 ratio with type 1/2 in 5M-effective pixel. Adopting back-illuminated structure with 2.4 µm unit pixel and 14 bit ADC, it provides all three advantages of high resolution, high sensitivity, and high dynamic range, which are necessary for security cameras. The senor has the following characteristic:

- **Back-illuminated structure 2.4 µm unit pixel**
- **10 bit/12 bit/14 bit A/D converters**
- **Supporting type 1/2 5M effective pixels in 3 formats**
- **HLP (High Light Performance) mode**
- **LLP (Low Light Performance) mode**
- **Pin compatible with the existing product "IMX185LQJ"**

High Sensitivity

To achieve high sensitivity, which is one of the most important characteristics for security cameras, this time Sony developed back-illuminated structure 2.4 µm unit pixel and accomplished the equivalent sensitivity as the existing back-illuminated structure 2.8 µm unit pixel, "IMX136LQJ"*2. Also near infrared sensitivity was improved from the IMX136LQJ, which is equivalent to the IMX236LQJ*3, and it is suitable for Day/Night cameras and near infrared light LED used as auxiliary light.

High Dynamic Range

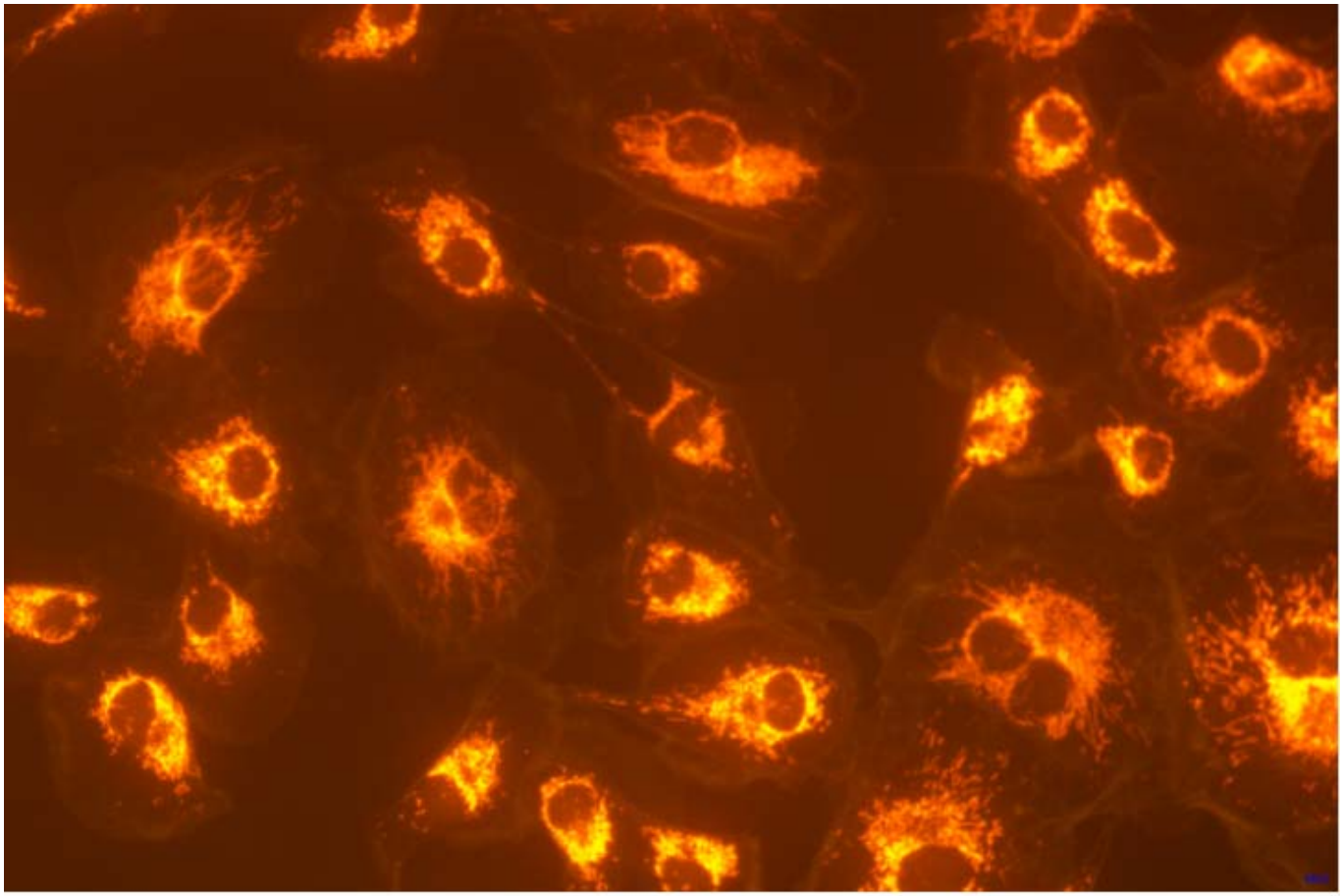
Dynamic range is determined by the ratio of saturation signal and dark random noise. The IMX178LQJ featuring 14 bit ADC reduced quantization noise and also suppressed dark random noise. At the result, high dynamic range was achieved, which is equivalent to the existing 3.75 µm unit pixel, the IMX104LQJ*4. It enables clear image quality in light and dark areas even for the objects with high contrast.

Image Format

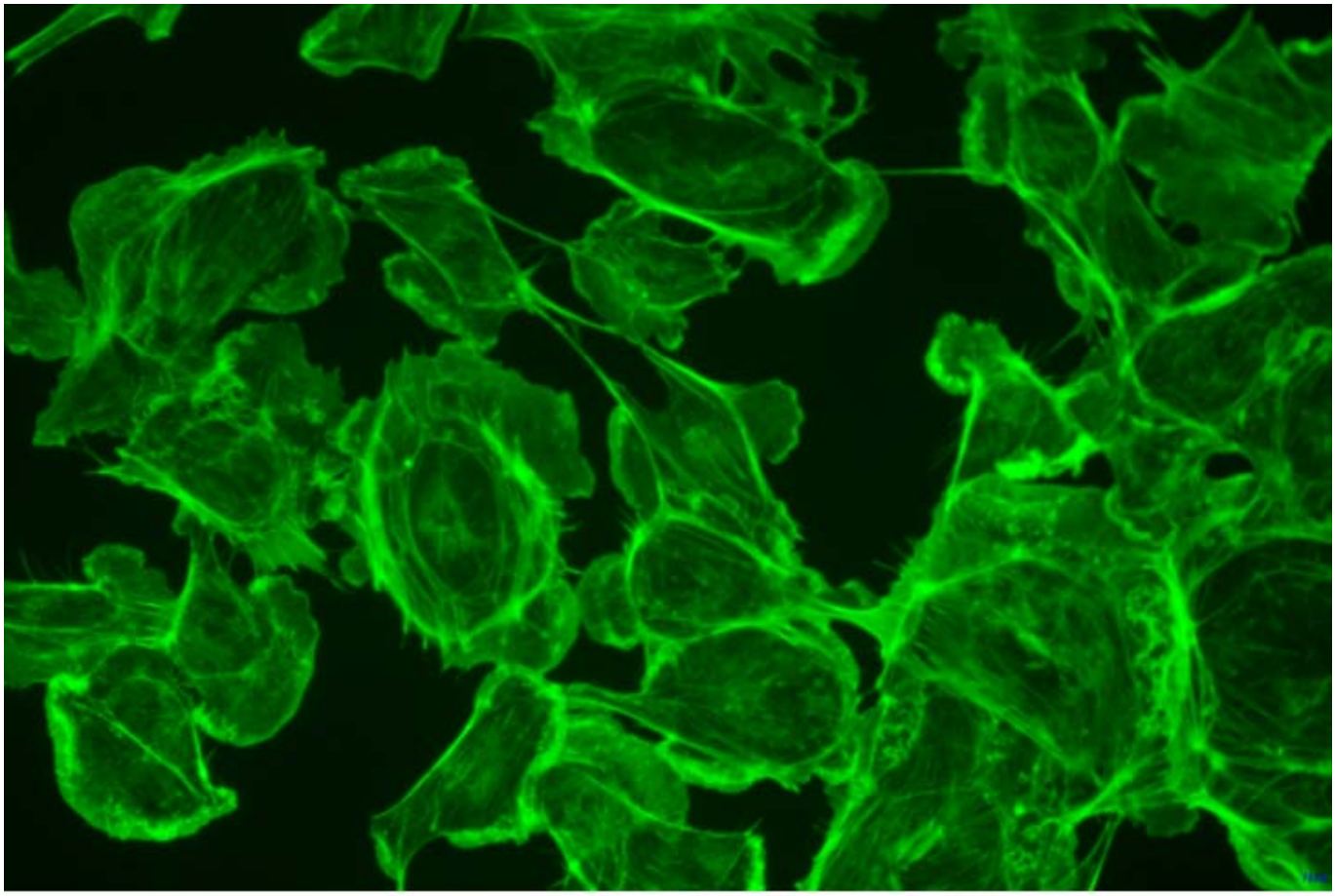
The format for image size of security camera is typically 4:3, 5:4 for fisheye lens, or 16:9 for full HD. The IMX178LQJ supports all these three formats in 5M pixels high resolution. Also it secures high resolution as well as high sensitivity and high dynamic range at the same time, therefore the specification works best for high performance security cameras with type 1/2 lenses.

Compatibility with Existing Sony Products

Images captured with ECMOS02300KPA



Red Fluorescent Image



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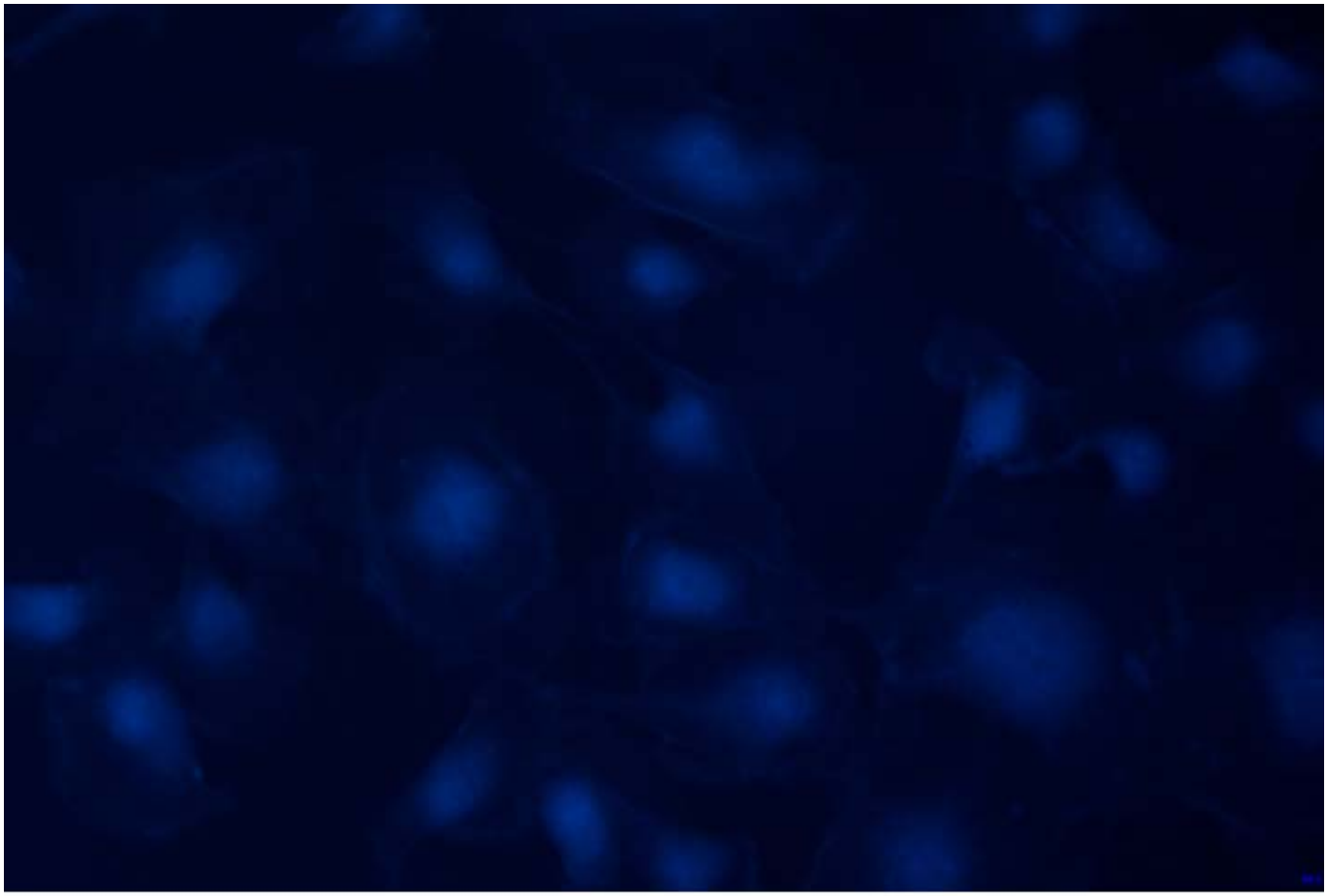
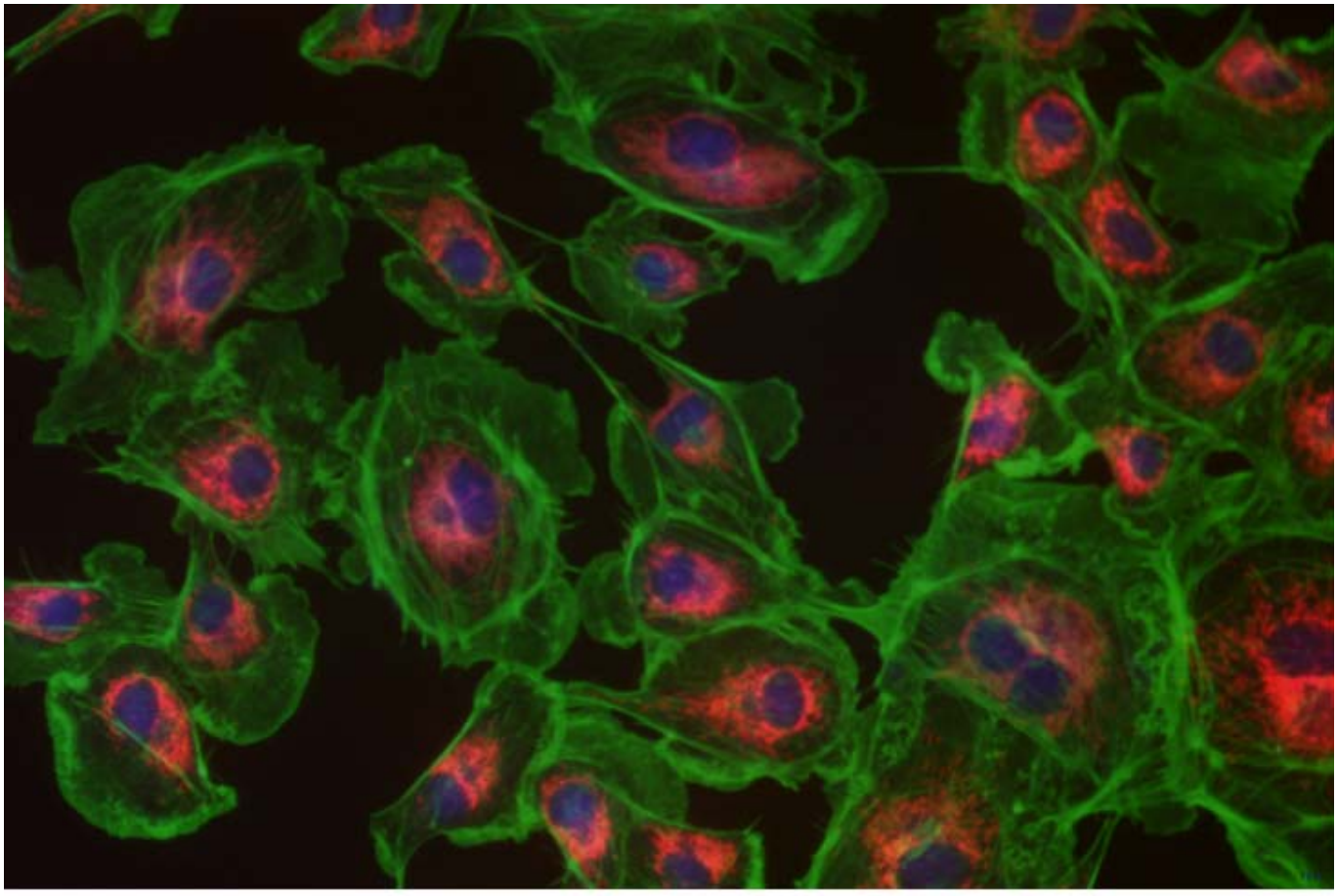


Blue Fluorescent Image



Fused Fluorescent Image