

# Angiogenesis

*For 17 players*

Katherine Bodor  
Duration ca. 8'  
Score in C

## Instrumentation

Flute  
Oboe  
Clarinet in Bb  
Bassoon

Horn in F  
Trumpet in Bb  
Trombone  
Tuba

2 Percussion  
Harp  
Piano

2 Violins  
Viola  
Cello  
Double Bass

## Percussion 1

High-hat  
2 timbales  
2 tom-toms

## Percussion 2

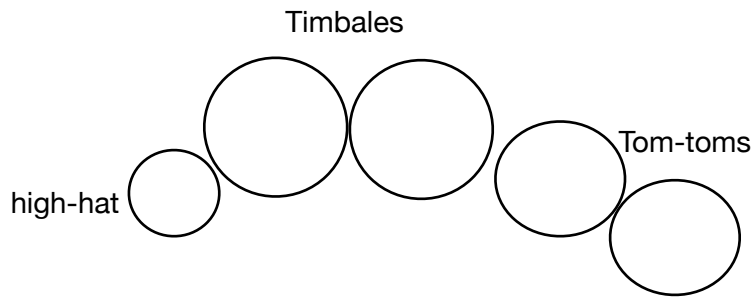
Suspended cymbal  
Bongos  
Bass drum  
Crotales

Perc 1

tom-toms                      timbales

high-hat

Setup:



Performance notes:

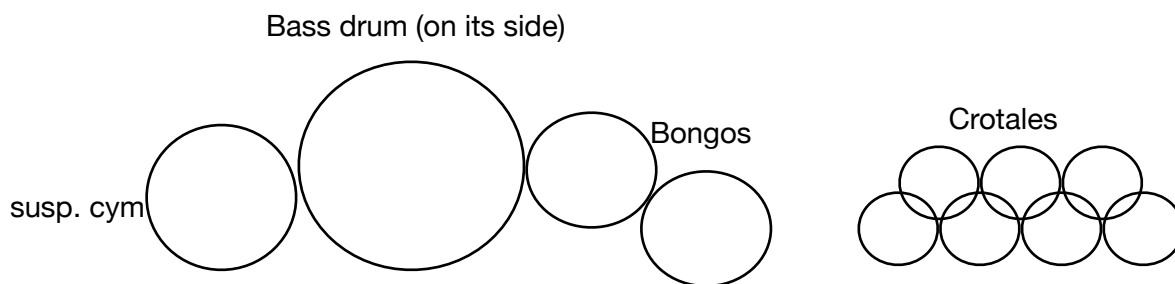
- When playing the high-hat, symbols for closed or open apply to all of the notes following, until the next symbol appears
- "Choke" or "dampen immediately" indicates to dampen the sound; otherwise, assume all sounds can ring

Perc 2

susp. cym

bass drum      bongos      crotales

Setup:



Performance notes:

- "Choke" or "dampen immediately" indicates to dampen the sound; otherwise, assume all sounds can ring

## Composer's Note

Angiogenesis is the process by which the human body creates new blood vessels. This is a fascinating capability, as it is both lethal and lifesaving in different contexts.

In the case of cancer, angiogenesis around and into tumors supplies the oxygen and nutrients necessary for accelerated tumor growth, and a goal in cancer treatment is to target and block receptors that trigger the growth of new blood vessels that feed tumors.

On the other hand - in the case of heart disease - if an arterial blockage in the heart develops slowly enough, the restricted blood flow acts as a cue to the body to stimulate angiogenesis around a blockage. There are documented cases where patients have a total coronary blockage, but have not had a major heart attack: the body has healed itself, growing new tiny blood vessels around a blockage and allowing the blood to still pass through. New treatments for cardiovascular blockages include targeted, controlled stimulation of this incredible natural process.

This piece focuses on the latter form of angiogenesis, offering a musical depiction of the sinister nature of a growing blockage that the body then overcomes. Coronary angiogenesis is a miracle, and the piece ends with a meditative soundworld that reflects the peace of knowing that healing is possible.

# Angiogenesis

Written for the Indiana University Jacobs School of Music New Music Ensemble

Katherine Bodor (b. 1994)

**2**  $\text{♩} = 76$  **4**

Flute *ff* *ff* *ff* 7

Oboe *ff* *ff* *ff* 6

Clarinet in B $\flat$  *ff* *ff* *ff* 7

Bassoon *ff* *ff* *ff*

Horn in F *ff* *ff* *ff* *fp* *ff* 3

Trumpet in B $\flat$  *ff* *ff* *ff* *fp* *ff* 3

Trombone *ff* *ff* *ff* *fp* *ff* 3

Tuba *ff* *ff* *ff* *fp* *ff* 3

Percussion 1 (high-hat, 2 timbales, 2 tom-toms) *f* *f* *f*

Percussion 2 (bass drum, bongos, susp. cym, crotales) *f* *f* *pp* *f* choke

Harp (Tune to E Major scale through m. 7) *ff* *ff* *ff* *gliss.*

Piano *ff* *ff* *ff*

**2**  $\text{♩} = 76$  **4**

Violin I *ff* *ff* *ff* 7

Violin II *ff* *ff* *ff* 7

Viola *ff* *ff* *ff* 6

Violoncello *ff* *ff* *ff*

Contrabass *ff* *ff* *ff*



13

Fl. *f* *pp* *pp* *ff*

Ob. *f* *pp*

Cl. *3*

Bsn. *3*

Hn.

Tpt.

Tbn.

Tba.

Perc. *p*

Perc. *p* *f* *pp*

Hp.

Pno. *f*

Vln. I *pp* *ff*

Vln. II *pp* *ff*

Vla.

Vc.

Cb.

3/8 2/4 3/8 2/4 4/4 2/4 3/8

14





24 **2** **1** **3** **4** **27**

Fl. *f* *pp*

Ob. *f* *pp*

Cl. *f* *p*

Bsn. *f* *p*

Hn.

Tpt.

Tbn.

Tba.

Perc. *p* *ff* *pp* *f*

Perc. *pp* *ff* *pp* *p* *f*

dampen immediately

Hp. *p* *f*

Pno. *f*

**2** **1** **3** **4** **27**

Vln. I *p* (pizz)

Vln. II *p* (pizz)

Vla.

Vc. (pizz)

Cb. (pizz)







38

Fl. *p*

Ob. *p*

Cl. *p*

Bsn.

Hn.

Tpt.

Tbn.

Tba.

Perc. *mp*

Hp.

Pno. *p* *mp*

Vln. I *p*

Vln. II *p*

Vla. *p*

Vc. *p*

Cb. arco

Detailed description: This page of a musical score covers measures 38 and 39. The woodwind section includes Flute (Fl.), Oboe (Ob.), Clarinet (Cl.), and Bassoon (Bsn.). The brass section includes Horn (Hn.), Trumpet (Tpt.), Trombone (Tbn.), and Tuba (Tba.). The percussion section (Perc.) features a complex rhythmic pattern with triplets and sextuplets, marked *mp*. The piano (Pno.) part consists of two staves with flowing sixteenth-note passages, marked *p* and *mp*. The string section includes Violin I (Vln. I), Violin II (Vln. II), Viola (Vla.), Violoncello (Vc.), and Contrabass (Cb.), all marked *p*. The Cb. part includes the instruction 'arco'.

Fl. *mf* *ff*

Ob. *mf* *ff*

Cl. *mp* *mf* *ff*

Bsn. *pp* *ff*

Hn. *pp* *ff*

Tpt. *pp* *ff*

Tbn. *pp* *ff*

Tba. *pp* *ff*

Perc. *mf* *ff* *f*

Hp. *ff*

Pno. *mf* *f* *ff*

Vln. I *mf* *f* *ff*

Vln. II *mf* *f* *ff*

Vla. *mf* *f* *ff*

Vc. *mf* *f* *ff*

Cb. *mf* *f* *ff*

8va

Red.

49

45

Fl. *ff* *ff* *p* *f*

Ob. *ff* *ff* *p* *f*

Cl. *ff* *ff* *p* *f*

Bsn. *ff* *ff* *ff*

Hn. *ff* *ff* *fp* *ff* *ff*

Tpt. *ff* *ff* *fp* *ff* *sfzp* *ff*

Tbn. *ff* *ff* *fp* *ff* *sfzp* *ff*

Tba. *ff* *ff* *fp* *ff* *sfzp* *ff*

Perc. *f* *f* *f* *f*

Perc. *pp* *f* *f* *p*

Hp. *f* *f* *f* *f*

(tune to f natural minor scale through m.51) *gliss.*

Pno. *ff* *ff* *ff*

Vln. I *ff* *ff* *p* *f*

Vln. II *ff* *ff* *p* *f*

Vla. *ff* *ff* *p* *f*

Vc. *ff* *ff* *ff*

Cb. *ff* *ff* *ff*

49







55 57

Fl. *pp*

Ob. *pp*

Cl. *pp*

Bsn. *pp*

Hn. *ff*

Tpt. *sfzp* *ff*

Tbn. *sfzp* *ff*

Tba. *sfzp* *ff*

Perc. *p*

Perc. *f* *p* *f* *p* *f* dampen immediately To crotales

Hp.

Pno. *p*

Vln. I 57

Vln. II

Vla.

Vc. *3*

Cb.

59

Fl.

Ob.

Cl.

Bsn.

Hn.

Tpt.

Tbn.

Tba.

Perc.

Perc.

Hp.

Pno.

Vln. I

Vln. II

Vla.

Vc.

Cb.

5/4

4/4

5/4

4/4

*p*

*pp*

*pp*

*p*

*pp*

*pp*

*pp*















Fl. *mf p mf p*

Ob. *mf p mf p*

Cl. *mf p mf p*

Bsn. *mf p mf p*

Hn. *f*

Tpt. *f*

Tbn. *f*

Tba. *f*

Perc. *pp p*

Hp.

Pno.

Vln. I *p f p f p*  
 gradually rising, not specific pitches  
 (pitches provided as approximate reference)

Vln. II *p f p f p*  
 gradually rising, not specific pitches  
 (pitches provided as approximate reference)

Vla. *p f p f p*  
 gradually rising, not specific pitches  
 (pitches provided as approximate reference)

Vc. *p f p f p*  
 gradually rising, not specific pitches  
 (pitches provided as approximate reference)

Cb. *f*





93

Fl.

Ob.

Cl.

Bsn.

Hn.

Tpt.

Tbn.

Tba.

Perc.

Perc.

Hp.

Pno.

Vln. I

Vln. II

Vla.

Vc.

Cb.

*tr*

*8*

*8*

*sfz* *ff*

*sfz* *ff*

*sfz* *ff*

*sfz* *ff*

*p* *f* *p* *f* *p*

*gliss.*

*Ped.*

Fl. *96* *b*

Ob.

Cl.

Bsn.

Hn.

Tpt.

Tbn.

Tba.

Perc.

Perc.

*f*

*p*

To crotales

Hp.

Pno.

*p*

*Leg.*

Vln. I

Vln. II

Vla.

Vc.

Cb.

4  
♩ = 60

99 rit.

Fl. *pp*

Ob. *pp*

Cl. *pp*

Bsn. *pp*

Hn.

Tpt.

Tbn.

Tba.

Perc. *p* bowed *p*

Hp. *p*

Pno.

4  
♩ = 60

rit.

Vln. I *pp*

Vln. II *pp*

Vla. *pp*

Vc. *pp*

Cb.



107

Fl. *mf* *p* *tr*

Ob. *mf* *p*

Cl. *mf* *p*

Bsn. *mf* *p*

Hn.

Tpt.

Tbn.

Tba.

Perc.

Crot. *p* *p* *p* *p*

Hp.

Pno.

Vln. I *p* *pp* 6 6 6 6 *p* 6

Vln. II *p* *pp* 6 6 6 6 6 6 6 6 *sim.*

Vla. *p* *pp* 6 6 6 6 *sim.*

Vc. *p* *pp*

Cb.

113

Fl.

Ob.

Cl.

Bsn.

Hn.

Tpt.

Tbn.

Tba.

Perc.

Crot.

Hp.

Pno.

Vln. I

Vln. II

Vla.

Vc.

Cb.

*pp*

*mp*

*p*

*pp*

*6*

*b*

*p*

*mp*

*pp*

*p*

Detailed description: This page of a musical score covers measures 113 through 116. The instrumentation includes Flute (Fl.), Oboe (Ob.), Clarinet (Cl.), Bassoon (Bsn.), Horn (Hn.), Trumpet (Tpt.), Trombone (Tbn.), Tuba (Tba.), Percussion (Perc.), Crotchet (Crot.), Harp (Hp.), Piano (Pno.), Violin I (Vln. I), Violin II (Vln. II), Viola (Vla.), Violoncello (Vc.), and Contrabass (Cb.). Measures 113-115 are mostly rests for most instruments. The Oboe, Horn, Trumpet, and Trombone parts feature long, sustained notes with dynamic markings of *pp* and *mp*. The Harp part begins in measure 116 with a *p* dynamic. The Violin I part has a sixteenth-note pattern with a *6* fingering and a *b* (flat) accidentals. The Violin II and Viola parts have sustained notes with dynamic markings of *p*, *mp*, and *pp*.

117

This page of a musical score, page 30, contains measures 117 through 120. The score is arranged in a standard orchestral layout with the following parts from top to bottom: Flute (Fl.), Oboe (Ob.), Clarinet (Cl.), Bassoon (Bsn.), Horn (Hn.), Trumpet (Tpt.), Trombone (Tbn.), Tuba (Tba.), Percussion (Perc.), Cymbals (Crot.), Harp (Hp.), Piano (Pno.), Violin I (Vln. I), Violin II (Vln. II), Viola (Vla.), Violoncello (Vc.), and Contrabass (Cb.).

Measure 117: Flute plays a melodic line starting with a *p* dynamic. Oboe, Clarinet, Bassoon, Horn, Trumpet, Trombone, and Tuba are silent. Percussion and Cymbals are silent. Harp is silent. Violin I plays a sixteenth-note figure with a *6* fingering. Violin II, Viola, and Violoncello play chords with dynamics *mp* and *pp*.

Measure 118: Flute is silent. Oboe, Clarinet, Bassoon, Horn, Trumpet, Trombone, and Tuba play sustained notes with dynamics *pp* and *mp*. Percussion and Cymbals are silent. Harp is silent. Violin I continues with the sixteenth-note figure. Violin II, Viola, and Violoncello play chords with dynamics *p* and *mf*.

Measure 119: Flute is silent. Oboe, Clarinet, Bassoon, Horn, Trumpet, Trombone, and Tuba play sustained notes with dynamics *pp* and *mp*. Percussion and Cymbals are silent. Harp is silent. Violin I continues with the sixteenth-note figure. Violin II, Viola, and Violoncello play chords with dynamics *mf* and *p*.

Measure 120: Flute plays a melodic line with a *pp* dynamic. Oboe, Clarinet, Bassoon, Horn, Trumpet, Trombone, and Tuba are silent. Percussion and Cymbals are silent. Harp plays a sustained chord with a *pp* dynamic. Violin I is silent. Violin II, Viola, and Violoncello are silent. Cb. is silent.

122

121

Fl. *mp*

Ob. *mp* *pp* *p* *p*

Cl. *mp* *pp* *p* *mp*

Bsn. *mp*

Hn. *pp* *p* *mp*

Tpt.

Tbn. *pp* *p* *p* *mp*

Tba.

Perc.

Crot. *p*

Hp.

Pno.

122

Vln. I *6*

Vln. II *sim.* *pp* *p*

Vla. *pp* *p*

Vc.

Cb.

This page of a musical score contains measures 127 through 130. The instruments are arranged as follows from top to bottom: Flute (Fl.), Oboe (Ob.), Clarinet (Cl.), Bassoon (Bsn.), Horn (Hn.), Trumpet (Tpt.), Trombone (Tbn.), Tuba (Tba.), Percussion (Perc.), Cymbals (Crot.), Harp (Hp.), Piano (Pno.), Violin I (Vln. I), Violin II (Vln. II), Viola (Vla.), Violoncello (Vc.), and Contrabass (Cb.).

Measure 127: The Oboe, Clarinet, Horn, and Trombone play a melodic line starting with a half note G4 (marked *mp*), followed by a half note A4 (marked *mf*), and ending with a half note G4 (marked *p*). The Flute, Bassoon, Trumpet, Tuba, Percussion, Harp, Piano, Violin II, Viola, Violoncello, and Contrabass are silent.

Measure 128: The Oboe, Clarinet, Horn, and Trombone continue the melodic line with a half note A4 (marked *mf*), followed by a half note B4 (marked *p*), and ending with a half note A4 (marked *p*). The other instruments remain silent.

Measure 129: The Oboe, Clarinet, Horn, and Trombone continue the melodic line with a half note B4 (marked *mf*), followed by a half note C5 (marked *p*), and ending with a half note B4 (marked *p*). The other instruments remain silent.

Measure 130: The Oboe, Clarinet, Horn, and Trombone continue the melodic line with a half note C5 (marked *p*), followed by a half note B4 (marked *p*), and ending with a half note A4 (marked *p*). The other instruments remain silent.

The Violin I part features a complex rhythmic pattern of sixteenth notes with a '6' (sixteenth) marking below the staff in each measure. The Violin II, Viola, Violoncello, and Contrabass parts are silent throughout these measures.

131 *tr*

Fl. *p* *pp* *mp*

Ob. *pp* *mp* *pp* *mp*

Cl. *pp* *mp*

Bsn. *pp* *mp*

Hn. *pp* *mp*

Tpt. *pp* *mp*

Tbn. *pp* *mp*

Tba.

Perc.

Crot. *p* *p*

Hp. *p*

Pno.

Vln. I *sim.* 6 6

Vln. II *mp*

Vla. *mp*

Vc.

Cb.